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AUCKLAND

University College

(UNIVERSITY OF NEW ZEALAND).

CALENDAR

FOR THE YEAR 1908.

Auckland:
PRINTED FOR THE UNIVERSITY COLLEGE.

46899

MDCCCCVIII.

PRINTED BY WILSON AND HORTON.

1908

Auckland University College.

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THE HONORABLE THE MINISTER OF EDUCATION.

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* *Ex officio.*

A. Appointed by the Governor in Council.
B. Elected by the Members of the General Assembly resident in the Provincial District of Auckland.
C. Elected by Graduates.
1. Until May, 1908.
2. Until May, 1909.
3. Until May, 1910.

v.

Professors and Lecturers.

Professors:

Classics.

(VACANT.)

English.

CHARLES WILLIAM EGERTON, M.A. Dublin; Senior Moderator and Gold Medallist, 1885; Vice-Chancellor's Prizeman in English Prose Composition.

Mathematics.

HUGH WILLIAM SEGAR, M.A. Cambridge; Second Wrangler, 1890; Smith's Prizeman, 1892.

Chemistry and Experimental Physics.

FREDERIC DOUGLAS BROWN, HON. M.A. Oxford, B.Sc. London, F.C.S.

Biology and Geology.

ALGERNON PHILLIPS WITHIEL THOMAS, M.A. Oxford, F.L.S., F.G.S.; Burdett-Coutts University Scholar.

Music.

WILLIAM EDWIN THOMAS, MUS. DOC. Oxford; late Director of the Music at All Saints' School, Bloxham, Oxford; late Organist and Choirmaster of St. Clement's, Bournemouth; late Examiner of the London College of Music; late Hon. Local Examiner of R.A.M., London.

Mining Engineering.

ARTHUR JARMAN, A.R.S.M. London, M. Inst. M.M. London, M.A.I.M.E.

Lecturers:

Applied Mechanics, Steam Engine, Machine Construction and Drawing.

SIDNEY E. LAMB, B.Sc. Lond., A.R.C.Sc. Lond., A.M.I.M.E.

Modern Languages.

MAXWELL WALKER, M.A.

Law.

ROBERT NORMAN MOODY, LL.M.

Mental Science, Economics, History, and Commercial Geography.

J. P. GROSSMANN, M.A.

Accounting.

HORACE H. HUNT, F.N.Z.A. and A.A.

Education.

HERBERT A. E. MILNES, B.Sc. Lond.

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JANUARY—XXXI.

1	W	
2	TH	
3	F	
4	S	
5	S	
6	M	
7	TU	
8	W	
9	TH	
10	F	
11	S	
12	S	
13	M	
14	TU	
15	W	Third Professional Medical and Veterinary Ex-
16	TH	amination generally held about this date
17	F	
18	S	
19	S	
20	M	Council meets.
21	TU	Meeting of Recess Committee of Senate on
22	W	results of December Examination held
23	TH	about the 20th.
24	F	Senate meets at Wellington on 22nd. Applica-
25	S	tions for *ad eundem* degrees not received
26	S	after this date.
27	M	
28	TU	
29	W	
30	Th	
31	F	The Bowen Prize awarded during Session of Senate.

FEBRUARY—XXIX.

1	S	Election of Rhodes Scholar during this month.
2	**S**	
3	M	
4	TU	
5	W	
6	TH	
7	F	
8	S	
9	**S**	
10	M	
11	TU	
12	W	
13	TH	
14	F	
15	S	
16	**S**	
17	M	Council meets.
18	TU	
19	W	First Meeting of College Council, 1883
20	TH	
21	F	
22	S	
23	**S**	
24	M	
25	TU	
26	W	
27	TH	
28	F	
29	S	

MARCH—XXXI.

1	S	
2	M	First Term begins. Candidates' notices, with
3	Tu	fees, for Special Medical Examination,
4	W	must be in by the 2nd.
5	Th	
6	F	
7	S	
8	S	
9	M	
10	Tu	Candidates' notices, with fees, for May Special
11	W	Law Examinations, must be in by the 10th.
12	Th	
13	F	
14	S	
15	S	
16	M	Council meets.
17	Tu	
18	W	
19	Th	
20	F	
21	S	
22	S	
23	M	
24	Tu	
25	W	
26	Th	
27	F	
28	S	Special Meeting of Senate to consider results
29	S	of Degree Examinations held during this month or early in April.
30	M	Special Medical Examinations held during this
31	Tu	month or early in April, if required.

APRIL—XXX.

1	W	
2	TH	
3	F	
4	S	
5	S	
6	M	
7	TU	
8	W	
9	TH	
10	F	
11	S	
12	S	
13	M	
14	TU	
15	W	
16	TH	
17	F	Good Friday. Easter Recess begins.
18	S	
19	S	Easter Day.
20	M	
21	TU	Easter Recess ends.
22	W	
23	TH	
24	F	
25	S	
26	S	
27	M	Council meets.
28	TU	
29	W	
30	TH	

MAY—XXXI.

1	F	Candidates' notices, accompanied by fees, for M.A., M.Sc., LL.M., Honours in Arts, Science, and Law, Mus. B., Mus. D., LL.D., Litt. D., D.Sc., Senior and Tinline Scholarships, and all Engineering Examinations, must be in by this date, or with two guineas extra by May 15th, or with four guineas extra by May 29th.
2	S	
3	S	
4	M	
5	TU	
6	W	
7	TH	
8	F	
9	S	First Term ends.
10	S	Candidates' notices and fees for M.D. Examination must be in during this month.
11	M	Special Law Examination held during this month.
12	TU	
13	W	
14	TH	
15	F	
16	S	
17	S	
18	M	Council meets.
19	TU	
20	W	
21	TH	University College opened by His Excellency the Governor (Sir Wm. Jervois, G.C.M.G.), 1883.
22	F	
23	S	
24	S	
25	M	
26	TU	
27	W	
28	TH	
29	F	
30	S	
31	S	

JUNE—XXX.

1	M	Second Term begins.
2	Tu	
3	W	
4	Th	
5	F	
6	S	
7	**S**	
8	M	
9	Tu	
10	W	
11	Th	
12	F	
13	S	
14	**S**	
15	M	Council meets.
16	Tu	
17	W	
18	Th	
19	F	
20	S	
21	**S**	
22	M	
23	Tu	
24	W	
25	Th	
26	F	
27	S	
28	**S**	
29	M	
30	Tu	

JULY—XXXI.

1	W	
2	TH	
3	F	
4	S	
5	S	
6	M	
7	TU	
8	W	
9	TH	
10	F	
11	S	
12	S	
13	M	
14	TU	
15	W	
16	TH	
17	F	
18	S	
19	S	
20	M	Council meets
21	TU	
22	W	
23	TH	
24	F	
25	S	
26	S	
27	M	
28	TU	
29	W	
30	TH	
31	F	

AUGUST—XXXI.

1	S	
2	**S**	
3	M	
4	Tu	
5	W	
6	Th	
7	F	
8	S	
9	**S**	
10	M	Second Term ends.
11	Tu	
12	W	
13	Th	
14	F	Undergraduates exempted under Statute "Terms
15	S	and Lectures" must give notice by the
16	**S**	15th to the College Registrar of their intention to come up for Annual Examination.
17	M	Council meets.
18	Tu	
19	W	
20	Th	
21	F	
22	S	
23	**S**	
24	M	
25	Tu	
26	W	
27	Th	
28	F	
29	S	"New Zealand University Act, 1874," passed.
30	**S**	
31	M	

SEPTEMBER—XXX.

1	TU	Candidates' notices with fees for the November Examinations (B.A., B.Sc., B. Com., LL.B., Law Prof., Int. and 1st and 2nd Prof. Med., Dent., and Vet.) not received by the University Registrar after this date, except with two guineas extra up to Sept. 15th, or four guineas extra up to Sept. 29th.
2	W	
3	TH	
4	F	
5	S	
6	**S**	
7	M	Third Term begins on 2nd.
8	TU	
9	W	
10	TH	"Auckland University College Act, 1882," passed.
11	F	
12	S	
13	**S**	
14	M	
15	TU	Last day of receiving notices for Annual Examination; but names may be received by the Registrar up to the eighth day of October, on payment of a fine of half-a-guinea.
16	W	
17	TH	
18	F	
19	S	
20	**S**	
21	M	Council meets.
22	TU	
23	W	
24	TH	
25	F	
26	S	
27	**S**	
28	M	
29	TU	
30	W	

OCTOBER—XXXI.

1	TH	
2	F	
3	S	
4	S	
5	M	
6	TU	
7	W	
8	TH	
9	F	
10	S	
11	S	
12	M	
13	TU	
14	W	Candidates for the December Examinations must send in notices and fees to the University Registrar by a date to be found in the University of New Zealand Calendar for 1908-1909.
15	TH	
16	F	
17	S	
18	S	
19	M	Council meets.
20	TU	
21	W	
22	TH	
23	F	
24	S	
25	S	
26	M	
27	TU	
28	W	
29	TH	
30	F	
31	S	

NOVEMBER—XXX.

1	S	
2	M	Examinations for Degrees in Arts, etc., held this
3	Tu	month.
4	W	
5	Th	
6	F	
7	S	
8	S	
9	M	King's Birthday.
10	Tu	Third Term ends.
11	W	
12	Th	
13	F	
14	S	
15	S	
16	M	Council meets.
17	Tu	
18	W	
19	Th	
20	F	
21	S	
22	S	
23	M	
24	Tu	
25	W	
26	Th	
27	F	
28	S	
29	S	
30	M	

DECEMBER—XXXI.

1	TU	
2	W	
3	TH	
4	F	
5	S	
6	S	
7	M	
8	TU	
9	W	
10	TH	
11	F	
12	S	
13	S	
14	M	
15	TU	
16	W	
17	TH	
18	F	
19	S	
20	S	
21	M	Council meets
22	TU	
23	W	
24	TH	
25	F	Christmas Day.
26	S	
27	S	
28	M	
29	TU	
30	W	
31	TH	

Auckland University College.

HISTORICAL SKETCH.

THE introduction of University Education into New Zealand was effected by the Superintendent and Provincial Council of Otago, who, in 1869, passed an Ordinance under which the University of Otago was established. Following closely on the founding of this institution was the establishment of the University of New Zealand under an Act of the General Assembly, "The New Zealand University Act, 1870." This University subsequently received a Royal Charter, whereby the Degrees which it confers are declared entitled to "rank, precedence, and consideration" throughout the British Empire, "as fully as if the said Degrees had been conferred by any University of the United Kingdom." It was apparently contemplated by Parliament *(vide* section 19 of the Act last quoted) that the New Zealand University and the Otago University should be amalgamated; but the negotiations for this purpose having failed, the two institutions remained for some time distinct bodies. In the year 1874, however, the University of Otago surrendered or put in abeyance its power of conferring Degrees, and became affiliated to the University of New Zealand; and at the same time it was stipulated that the University of New Zealand should not directly exercise functions of teaching.

In the year 1873 the Superintendent and Provincial Council of Canterbury passed an Ordinance for founding "The Canterbury College;" and the College was accordingly established with the same standard of University education as that of the University of Otago, but without the power of conferring Degrees.

In December, 1878, a Royal Commission on University and Secondary Education was appointed by the Governor of New Zealand. This Commission, of which Sir George Maurice O'Rorke was Chairman, met in January, 1879, and on the 9th

of July following reported that two Colleges, with an income of £4,000 each, ought to be established in Auckland and Wellington, and that suitable buildings, at a cost of £12,500 each, should be erected in those cities. In the following year the Royal Commission repeated these recommendations.

"The Auckland University College Act, 1882," which became law on the 13th of September in that year, definitely established the Auckland University College, and endowed it with a statutory grant of £4,000 per annum. By "The Auckland University College Reserves Act, 1885," three blocks of land, containing about 10,000 acres each, and a block containing about 354 acres, which had been devoted to the purpose of promoting higher education in the Province of Auckland, became vested in the Council of the University College.

The Auckland University College was affiliated to the University of New Zealand, by the Senate of the University, on the 6th of March, 1883; and on the 21st of May in the same year the College was opened by His Excellency the Governor of New Zealand, Sir William F. Drummond Jervois, G.C.M.G.

The recommendation made by the Royal Commission, that College buildings should be erected, has not been carried into effect. The building in Eden Street, which was formerly the District Courthouse, was in 1883 placed at the disposal of the College Council by the Government, for the purposes of College work. The large room of this building was formed into a lecture-hall, and additions have been made for the formation of laboratories. In "The Special Powers and Contracts Act, 1885," the Governor was empowered, when the offices then occupied by the Survey and Crown Lands Departments in Auckland should be vacated, to transfer those as well as the District Courthouse mentioned above, to the College Council. The block of land on which these buildings (originally the Parliamentary buildings of New Zealand) stand extends from Parliament Street to Beach Road, containing an area of 1 acre 11 perches. This transfer was carried into effect in the year 1890; and by an expenditure of about £1,200 of the University College funds the premises were rendered fairly suitable to the purposes of the College.

The Governing Body of the College is constituted and incorporated by the Act of 1882, and is styled "The Auckland University College Council." It consists of eleven members,

two of whom are *ex officio*, viz., the Mayor of the City of Auckland and the Chairman of the Auckland Board of Education. The other nine form three groups, consisting of three members each, viz., three elected by the members of the General Assembly resident in the Provincial District of Auckland, three appointed by the Governor in Council, and three elected by the Graduates of the New Zealand University on the books of the College. These last three members were appointed by the Governor in Council until the College numbered thirty Graduates. Elections were made by the Graduates for the first time in 1890. One member of each group retires annually. The Minister of Education is the Visitor of the College. The Chairman of the Council is elected by the Council. The Council meets statedly at least once a month, five members forming a quorum. "The Professorial Board," which is constituted by the Act, possesses, "subject to the approval of the Council," the power of fixing the course of study and the days and hours of lectures and examinations, and prescribing the subjects of examinations for scholarships, exhibitions, and prizes; and it has, "subject to a right of appeal to the Council," a general control over the discipline of the students, the management of the library, and the direction of the College servants. It elects a Chairman annually. Each Professor or Lecturer is entitled to receive, in addition to his salary, the fees that are paid by students for attendance at his lectures.

Mr. Thomas Bannatyne Gillies, a Judge of the Supreme Court of New Zealand, presented to the College Council, in the year 1884, the sum of £3,000 (three thousand pounds), for the purpose of founding two Science Scholarships, to be called respectively the "Sinclair" and the "Gillies" Scholarship. They were so named in memory of Dr. Andrew Sinclair, uncle of the late Mrs. Gillies, and in memory of Mrs. Gillies herself. This munificent gift was forthwith utilised in the manner prescribed; but these Scholarships had to be put in abeyance for some years in consequence of the falling off in the value of the land on which the money was invested. They have now, however, been revived, and are at present of the value of £70 per annum each.

The Auckland Amateur Opera Club, in the year 1890, presented to the College Council the sum of two hundred guineas to be expended in that and the two following years for the

encouragement of the study of Music. Money Exhibitions, accordingly, were granted, to be competed for by students attending, or about to attend, the classes of the School of Music in the College. The results were considered to be very satisfactory, but the Exhibitions ceased to exist when the two hundred guineas were expended. The Countess of Onslow, in 1891, gave two silver medals to be awarded to the most deserving of those students in the Music classes whom the Regulations excluded from competing for Exhibitions. Similar gifts were made for the years 1892, 1893, 1894.

Lady Glasgow provided similar medals for 1895, 1896, and 1897, and Lady Ranfurly continued the medals for the years 1898, 1899, 1900, 1901, 1902, 1903. At a meeting of the Council held 22nd November, 1904, it was resolved that medals in the future be provided by the College out of the fees received for special musical examinations.

A valuable addition was made to the College Library on the 31st March, 1894, by the late Professor Charles Alexander Maclean Pond, M.A., who had held the chair of Classics and English from July, 1891, to October, 1893. The whole of his library, consisting of upwards of a thousand volumes, of standard English and Classical works, he bequeathed to the University College, and the books are now placed in a special press in the Library, each book being labelled as the bequest of the lamented Professor.

The Council is under great obligation to the late Mr. James McCosh Clark, who was Mayor of the City of Auckland during the years 1881, 1882, and 1883, and who, on the termination of his Mayoralty, was presented with a six-inch telescope by the citizens of Auckland as an appreciation of his public services and as a mark of the citizens' respect and esteem for Mrs. Clark, during her husband's Mayoralty. The use of this telescope has been placed at the service of the College, and it is now mounted at the top of the brick tower attached to the College building. The thanks of the College were tendered to Mr. and Mrs. Clark, for granting the use of the telescope to the College, by resolution unanimously passed by the Council on the 20th December, 1894, and similar thanks were given on the 16th November, 1896, to Mr. and Mrs. Clark for granting the College the use of a celestial globe.

By the will of the late Mr. J. L. Sinclair, who died at Otahuhu, on 12th November, 1895, the testator bequeathed to the Auckland University College Council all such of his books as the Professorial Board of the College might consider suitable for the College Library. There were selected and added to the Library 580 vols., each book bearing a label showing that it was bequeathed to the Library by the late James Leask Sinclair.

In the year 1897, it was found necessary to provide a new Physical Laboratory at a cost of £328 4s. 6d.

On the 20th June, 1898, the Council requested the Chairman (Sir Maurice O'Rorke) to draw the attention of the Government to the insufficiency of the accommodation in the College buildings for the classes attending lectures, and to the inability of the Council to provide the requisite accommodation out of its current revenue. This application was attended with success, so that on the 28th November, 1898, the Chairman was able to report that the Government had met the application in a liberal spirit, and that £1,000 had been cheerfully voted by Parliament. The Council tendered a hearty vote of thanks to Sir Maurice O'Rorke for his successful efforts to obtain this grant. The Government further showed their liberality by permitting Mr. C. R. Vickerman, of the Public Works Department, to prepare the necessary plans and to supervise the enlargement of the buildings. Tenders were called for, and that of Mr. John E. Guthrie, amounting to £1,116 11s., was accepted on the 29th of March, 1899. Other additions were afterwards found to be desirable, the cost of which was defrayed out of the funds of the College, and the total amount paid to the contractor was £1,213 6s. 6d. It was agreed to spend £120 on securing proper precautions against fire, and after providing suitable furniture the total cost amounted to £1,558 5s. 1d. Since this enlargement of the building, a feeling has arisen that a more permanent building than the present wooden structure, now fifty years old, should be obtained, and a sum of £5,000 (one-fourth of the contemplated amount) was granted in 1905 for each of the four affiliated institutions in Auckland, Wellington, Christchurch, and Dunedin. The difficulty in Auckland is the want of a suitable site, which should not be less than five or six acres. The present site is only one acre, and, not being perfectly level, does not admit of the easy enlargement of the College. The erection of new College Buildings is

still in abeyance through the want of a suitable site, which must, in the opinion of the Council and the Professorial Board, be secured within the city boundaries. Last year the grant for the new College was forfeited through want of a suitable site for the new University College. The Council believes that the present Minister for Education sympathises with the general feeling of the community in favour of having the building erected on the best site that can be obtained within the city. A handsome building, in a commanding position, would tend to increase the benefit of University Education in the City of Auckland, and give it a permanence that would last forever. The Council believes such a site will be ultimately acquired, and the Council thinks that the establishment of Special Schools, in addition to the regular University course, is appreciated by the public. The School of Music now numbers 60 students, the School of Commerce 43 students. The School of Mines is only yet in its infancy, numbering only 7 students.

It is intended to erect early in 1908 a building to accommodate the School of Mines Classes, apparatus for which has already been ordered.

On 11th May, 1900, a letter was received from the Secretary of the Education Department, intimating the establishment of a Sir George Grey Scholarship in Auckland University College, and enquiring whether the Council of the College would undertake the awarding of the Scholarship for the current year (1900), on certain specified conditions. The offer was accepted, and the Scholarship was awarded accordingly. The Scholarship is to be offered year by year, and a competition for it took place last year (1907), and it was again awarded.

By an Act in 1902, the constitution of the Senate of the New Zealand University was altered by abolishing the Senate then in existence and the creation of a new Senate by the election of five members from each of the University College Districts—viz., two by each Governing Board or Council, one by each Professorial Board, and two by each District Court of Convocation. Four members are added by the Governor in Council.

In 1904, Degrees were established in Literature, Veterinary and Dental Science, Agriculture, Public Health, and Commerce.

The business of the College has been considerably enlarged by the establishment of a School of Commerce and a School of Mines, and the appointment of a Lecturer on Educational matters, together with a Lecturer on Engineering subjects.

In the additional estimates passed by Parliament in 1904, a sum of £1,500 per annum was voted to each of the four University Colleges, which was increased in 1905 to £2,000 per annum. Specialities for this College are now fixed by a School of Commerce, opened in 1905, and by a School of Mines, opened in 1906; but it must not be understood that the establishment of these special schools debars the Council from enlarging the Law School so as to qualify its students for admission to the profession of the law, nor does it debar the Council from giving one or two years' preliminary training for the medical profession. This latter school would not encroach on the Medical School at the Otago University, but would rather tend to increase the attendance of medical students there, as this College does not contemplate giving a full training for the medical profession.

Negotiations have been for some time proceeding between the College Council and the Choral Society for the acquisition by the College of the Choral Hall for the temporary accommodation of some of the numerous classes recently established in the College, prior to the erection of the New University Buildings that have for some time been promised to Auckland, in order that the University Buildings might be of a permanent character, instead of the wooden structure in which its University College is now housed. It is hoped that a suitable site will ere long be secured, as all persons interested in University Education desire to see a building erected capable of accommodating the increasing number of students and contributing to the adornment of the City of Auckland.

College Regulations.

TERMS, FEES, ATTENDANCE AT LECTURES.

1. There shall be in each year three Terms. The First Term shall begin on the first Monday in March, and end on the tenth of May. The Second Term shall begin on the first Monday in June, and end on the tenth of August. The Third Term shall begin on the first Monday in September, and end on the tenth of November. The Easter Recess extends from Good Friday to Easter Tuesday, both days inclusive.

2. The fees for lectures shall be ten shillings per Term for a course occupying one hour per week, one pound per Term for a course occupying two hours per week, and so on proportionally. For laboratory instruction the fees shall be ten shillings per term for one half-day per week, one pound per term for two half-days per week, and so on proportionally. Provided that attendance at a course of lectures during the First and Second Terms shall entitle to exemption from payment of fee for attendance at a course of lectures on the same subject and not occupying a greater amount of time per week during the Third Term; and similarly as to attendance in laboratory. The Laboratory Fee for Honours Students in Science is £2 per Term or £4 per Session.

3. On payment of the fee at the office of the College a ticket of admission shall be issued. All fees must be paid within fourteen days from the commencement of the Term; if not paid, the student is liable to a fine of 2s. 6d. per month, or part of a month, for each subject. The first lecture of every course will be free.

4. Admission to lectures or laboratories shall not be restricted to undergraduates, that is to say, matriculated students, but shall be open to all persons who have complied with the preceding Regulation No. 3.

5. Each Professor and Lecturer shall keep a roll showing the number and names of the students present at each lecture, which rolls are to be preserved for reference. These rolls the Professors are requested to hand in to the Registrar the day before each Council meeting.

ANNUAL EXAMINATION.

6. The Annual Examination shall be held in the last part of the Third Term, at such time approved by the Council, as will allow the publication of the complete results by the last day of the Term.

7. Every student who shall have attended the full course of lectures during at least two Terms of the year, shall be entitled to be examined at the Annual Examination in that subject, without payment of any examination fee.

8. A fee of one guinea shall be paid for the Annual Examination in each subject which the candidate shall select, and on which he shall not have attended lectures. Students who are examined out of Auckland are required to pay an extra fee of half-a-guinea for each subject on which they are examined, to be paid to the Registrar at least ten days before the commencement of the Examination; but when at any place of examination only one student is examined, the extra fee shall be one guinea for each subject in which such student shall be examined.

9. All candidates for the Annual Examination must give in their names and the examination fees due (if any) to the Registrar on or before the fifteenth day of September in each year; but names may be received by the Registrar up to the twenty-second day of September in each year on payment of a fine of half-a-guinea.

10. As soon as practicable after the Annual Examination, there shall be published a list of undergraduates who have kept the Terms of the year, and also lists of those persons who have passed the examinations in the several subjects respectively. In each subject there shall be three classes, the First Class being the highest. In the First and Second Classes the names shall be arranged in order of merit; in the Third Class in alphabetic order.

THE KEEPING OF TERMS.

(N.B.—The following Regulations apply to undergraduates who desire to keep Terms with a view to examination by the University of New Zealand.)

11. Undergraduates shall be held to have kept Terms for the year in any subject who shall have *(a)* attended during the year at least three-fourths of the prescribed lectures, *and (b)* passed the Annual Examination in that subject.

12. *(1)* Undergraduates must, to complete their first year, keep Terms in three subjects. For their second year they must offer for examination such subjects as they intend to take for the first section of their Degree, but may be credited with the year by keeping Terms in three such subjects. For their third year they must keep Terms in such subjects as they intend to take to complete their Degree. In the case of a subject repeated for the Second Section of a Degree Examination, separate papers shall be set on the work prescribed by the University for the repeated subject.

(2) Graduates proceeding to another Degree, if required by University Statute to keep an additional year's Terms, must keep those Terms in such subjects as are necessary to complete that Degree.

(3) But students exempted by University Statute from attendance upon lectures shall be credited with their Terms if they shall have passed the examination for the year in the required subjects.*

13. Every student intending to present himself for any University Examination for a Degree, other than the Degree of Bachelor of Medicine, or any of the professional branches of the Degree of Bachelor of Science, shall, when he signifies to the Chancellor the subjects in which he elects to be examined, forward a duplicate of such notice to the Registrar of Auckland University College.

14. Students who intend to present themselves for examination in Physical Science, or in Biology, Geology, or Chemistry, must produce evidence that they have in the same, or a previous year, gone through, to the satisfaction of the Professor, a course of practical work in the subject.

REGULATIONS RESPECTING THE COLLEGE LIBRARY

15. The Assistant Librarian will attend daily for the purpose of students borrowing and returning books during Term time from 10 a.m. till 12 noon, and 4 p.m. till 6 p.m.; during vacation

* For students exempted by University Statute from attendance upon lectures, see University Calendar, Statutes "Terms and Lectures," chap. vi., reg. iii.

from 10 a.m. to 12 noon. Books are to be taken out only at the times specified. During Term the Library will be open to students for the purpose of reading till lectures close.

16. A Catalogue of the books shall be kept on the table.

17. No person shall make any mark in or upon any book, or fold down a leaf, or otherwise deface any book belonging to the Library. No one shall lay the paper on which he is writing on the book he is using.

18. All members of the Auckland University College shall be permitted to use the Library, but the privilege of taking out books shall be reserved for members of the Council, Professors, Lecturers, Graduates and Students attending Lectures.

19. All books, except such as may be specially reserved, may be taken out of the Library; but no person shall have in his possession more than two volumes at a time. Persons who retain a book for more than fourteen days shall be liable to a fine of threepence per day, or portion of a day, for each day for which it is retained beyond that period. But students who have not paid any fines due by them are not permitted to take books out of the Library.

20. Text-books prescribed for the current year shall in no case be removed from the Library.

21. Before removing a volume, the Assistant Librarian shall enter in a book to be kept in the Library, the name of the borrower, the title of the volume, and the date of removal. The borrower shall be responsible for its safe return, or, in the event of damage or loss, shall be liable to replace it at his own cost.

22. A notice-book shall be provided in the Library, in which a student desirous of obtaining a book already in circulation may enter his name and the title of the book desired. No person on returning a volume to the Library shall borrow it for a second period, unless he shall have satisfied himself by reference to the notice-book that the volume is not otherwise required.

MISCELLANEOUS.

23. The Calendar shall be distributed *free* to all matriculated students who are attending lectures, but to all others a charge shall be made of one shilling.

24. Students may obtain the use of a locker for the Session on payment of 1s. per annum to the Registrar.

25. Students are not permitted to use the telephone except with consent asked and obtained from the Registrar, and messages for students transmitted through the telephone are not to be delivered.

PREMIUMS.

26. There shall be awarded, after the Annual Examination, ten Premiums of the value of three guineas each, consisting of books or scientific instruments, in the following subjects:—

Latin
English
Pure Mathematics
Applied Mathematics
Chemistry
Physics
Biology
Geology
French
Jurisprudence and Constitutional History

27. In each subject the Premium shall be open for competition to first and second years' students in that subject; and it shall be awarded to the student recommended for the prize by the examiner, who in making the recommendation shall take into consideration the attendance, conduct, and progress of the student, as well as the number of marks gained at the examination.

28. Each prize-winner shall be allowed to select, subject to the approval of the Examiner, the books or scientific instruments to be received as a Premium; and if the cost exceed three guineas, the excess shall be defrayed by the student.

29. Each prize volume shall be well bound and stamped with the College Arms, and shall be distinctly labelled according to the subject in which it shall be awarded. Each scientific instrument awarded shall bear a suitable inscription.

30. If a student wins any of the above prizes in his or her First Year, such student shall not be allowed to win that prize or prizes in the Second Year, but may compete for a prize of a different denomination.

31. Only students who have attended lectures can have Premiums, Medals, or other prizes awarded to them.

PRIZES IN EARLY ENGLISH.

32. The Early English Text Society have offered for competition each year certain volumes of their publications. These books will be awarded on the results of an examination to be held early in the Third Term by the Professor of English Language and Literature. Students are required to notify to the Registrar their intention of competing for these prizes before the end of the Second Term.*

* For course see Syllabus.

REGULATIONS FOR THE SIR GEORGE GREY SCHOLARSHIP, 1908.

1. That the Council of the Auckland University College undertakes to award the Grey Scholarship for the current year (1908) upon the conditions prescribed in the letter of the Secretary of Education dated 11th May, 1900.

2. That the Scholarship be of the value of £50.

3. That the Scholarship be kept distinct from all other Scholarships by having a Special Examination by the Professors concerned in all the subjects taken up by the Candidates.

4. That the subjects of Examination shall be chosen from the following:—

1. Heat, Sound, and Light.
2. Electricity & Magnetism.
3. Astronomy.
4. Geology.
5. Botany.
6. Zoology.
7. Pure Mathematics.
8. Mechanics and Hydrostatics
9. Chemistry.

Of these a candidate may choose any three, but must take up one at least of subjects 1, 2, 3, 4.

5. That the Scholarship be open to all Students of this College who have not completed their third academical year on 1st October, 1908.

6. That the Scholarship be awarded upon an examination to be held at the end of the academic year 1908.

7. That the winner of the Scholarship must keep terms in this College during the Session of 1908 and pass the Annual Examination.

8. That the Scholarship be not tenable with any other scholarship or exhibition.

9. That the holder of the Scholarship shall be entitled to payment of one-third of the Scholarship at the end of the first and second terms, and at the end of the third term and the passing of the Annual Examination, on production of a certificate from the Professors under whom he or she shall have studied of diligent attendance, good conduct, and satisfactory progress in studies. Failing such certificate, or on an adverse report from the Professors, the Council may cancel the Scholarship, the money forfeited to be reserved for future Grey Scholarships.

10. That Candidates give notice to the Registrar on or before 1st October next of the subjects they propose to take up.

REGULATIONS RESPECTING SINCLAIR SCHOLARSHIP.

1. The Sinclair Scholarship to be competed for in the year 1908 is of the annual value of £70, and is tenable for three years. It is founded for the encouragement of the study of Biological Science.

2. This Scholarship is open to all persons, male or female, born in the Dominion of New Zealand, who at the time of examination shall be between the ages of sixteen and twenty years, and who have not kept Terms or attended Lectures or held a Scholarship in any University or College, and who shall satisfy the Council of the College that neither they nor their parents or guardians can obtain for them a University education without pecuniary aid. The holder of this Scholarship will not be allowed to hold concurrently a Junior University Scholarship.

3. Candidates, when giving notice of intention to compete, should forward (1) certificate of birth-place and age, and (2) a declaration, under the J.P. Act, to the following effect:—

> I, A——— B———, do solemnly and sincerely declare that neither I nor my parents or guardians can afford the expense of a University education for me without pecuniary assistance, and that I desire to obtain such an education.
>
> (Signed) A——— B———.

This declaration must be accompanied by a certificate from a Clergyman or Stipendiary Magistrate of the district in which the parents or guardians reside that to the best of his knowledge and belief the statement in the declaration is correct.

4. Candidates for the Sinclair Scholarship will be examined in Mathematics and in any two of the following subjects (*a*) Botany, (*b*) Animal Physiology, (*c*) Physical Geography, and will be required to write an English Essay on a subject selected by the Examiners.

The standard of the Examination will be the same as that for the Junior Scholarships of the University of New Zealand.

Special weight will be given to attainments and capacity in Animal Physiology and Botany.

5. The Examiners shall be entitled to certify to the Council that no sufficiently qualified candidate has appeared, whereupon the Council may decline to award the Scholarship.

6. The successful candidate will be required to keep Terms at the Auckland University College, and to carry on the studies for the encouragement of which the Scholarship was founded.

7. The holder of the Scholarship shall be entitled to payment of a proportionate amount of his Scholarship at the end of each collegiate Term, on production from the Professors under whom he has studied of a certificate of diligent attendance, good conduct, and satisfactory progress in studies. Failing such certificate, or on an adverse report from the Professors, the Council may cancel the Scholarship.

8. The Examination will be held at Auckland, Wellington, Christchurch, and Dunedin, about the end of October, and the names of candidates must be given in to the Registrar on or before the 1st day of that month.

REGULATIONS RESPECTING GILLIES SCHOLARSHIP.

1. The Gillies Scholarship to be competed for in the year 1909 is of the annual value of £70, and is tenable for three years. It was founded for the encouragement of the study of Chemistry and Physics.

2. This Scholarship is open to all persons, male or female, born in the Dominion of New Zealand, who at the time of examination shall be between the ages of sixteen and twenty years, and who have not kept Terms or attended Lectures, or held a Scholarship in any University or College, and who shall satisfy the Council of the College that neither they nor their parents or guardians can obtain for them a University education without pecuniary aid. The holder of this Scholarship will not be allowed to hold concurrently a Junior University Scholarship.

3. Candidates, when giving notice of intention to compete, should forward (1) certificate of birth-place and age, and (2) a declaration, under the J.P. Act, to the following effect:—

> I, A——— B———, do solemnly and sincerely declare, that neither I nor my parents or guardians can afford the expense of a University education for me without pecuniary assistance, and that I desire to obtain such an education.
>
> (Signed) A——— B———
>
> This declaration must be accompanied by a certificate from a Clergyman or Stipendiary Magistrate of the district in which the parents or guardians reside that to the best of his knowledge and belief the statement in the declaration is correct.

4. Candidates for the Gillies Scholarship will be examined in (1) Pure Mathematics, (2) Heat or Electricity and Magnetism, (3) Inorganic Chemistry, and will be required to write an English Essay on a subject selected by the Examiners.

> The standard of the Examination will be the same as that for the Junior Scholarships of the University of New Zealand.
>
> Special weight will be given to attainments and capacity in Physics and in Chemistry.

5. The Examiners shall be entitled to certify to the Council that no sufficiently qualified candidate has appeared, whereupon the Council may decline to award the Scholarship.

6. The successful candidate will be required to keep Terms at the Auckland University College, and to carry on the studies for the encouragement of which the Scholarship was founded.

7. The holder of the Scholarship shall be entitled to payment of a proportionate amount of his Scholarship at the end of each collegiate Term, on production of a certificate from the Professors under whom he shall have studied, of diligent attendance, good conduct, and satisfactory progress in studies. Failing such certificate, or on an adverse report from the Professors, the Council may cancel the Scholarship.

8. The Examination will be held at Auckland, Wellington, Christchurch, and Dunedin, about the end of October, and the names of candidates must be given in to the Registrar on or before the 1st day of that month.

RHODES SCHOLARSHIPS.

Under the will of the Right Hon. Cecil John Rhodes, certain Scholarships have been established at Oxford for students from the Colonies and the United States of America. These are of the yearly value of £300, and are tenable for 3 years. The number of Scholarships allotted to the Colonies is 60, and of these, 3 are allotted to New Zealand. Two Scholarships (or 100 in all) have been appropriated to each of the States and territories of the United States of North America. In New Zealand one Scholarship is to be filled up each year. In the election of a student to a Scholarship, regard shall be had (1) To his literary and scholastic attainments; (2) His fondness of and success in manly outdoor sports; (3) His qualities of manhood, truth, courage, devotion to duty, sympathy for the protection of the weak, kindliness, unselfishness, and fellowship; and (4) His exhibition during school days of moral force of character, and of instincts to lead and to take an interest in his schoolmates, for these latter attributes will be likely in after life to guide him to esteem the performance of public duties as his highest aim.

Regulations have been issued by the Trustees nominated by Mr. Rhodes, viz., Earl of Rosebery, Earl Grey, Lord Milner, Mr. Alfred Beit, Dr. Leander Starr Jameson, Mr. Lewis Loyd Mitchell, and Mr. Bourchier Francis Hawksley, and are to be found in the Calendar of the University of New Zealand. Copies of these regulations may be had on application to the Registrar of the University of New Zealand.

SCHOOL OF MINES' SCHOLARSHIPS.

The Regulations for the Scholarships can be seen in the "New Zealand Mines' Record" for June 16, 1902, or the "Gazette" for 9th May, 1902.

There are 4 Scholarships open for competition annually to Students in Schools of Mines. Two (2) are given for the North Island and 2 for the South.

They are of the value of £50 per annum, and are tenable for 3 years.

The Scholarships are tenable either at Auckland or Dunedin, and new Regulations to that effect will shortly be gazetted.

SYLLABUS OF LECTURES.

CLASSICS.

The appointment of a Professor is now pending; but it is necessary that information as to arrangements for the beginning of the academical year should be given at once. The Schedule of Lectures announced below differs from that of 1907 only as regards the parts of authors to be read, which are those prescribed by the University of New Zealand for the year. It is possible that it may be modified after a time, regard being had to the interests and convenience of all affected.

LECTURES ON PRESCRIBED BOOKS AND ON COMPOSITION.

LATIN.

Lectures on Tacitus, *Annals*, bk i., and on Vergil, *Georgics*, bk. iv.—**Mondays and Thursdays, 6-7 p.m.**

Lectures on Composition.—(1) Junior Course: **Mondays, 7-8 p.m.** This course, which is intended for students who have not previously had an adequate grounding in Syntax and Idiom, will deal with the Syntax of the Latin sentence, and lead up to continuous prose. (2) Senior Course: **Thursdays, 7-8 p.m.** The standard kept in view in this course will be that of the University examination for the degree of B.A. (pass); but the earlier lectures will be of a somewhat less advanced kind. (3) Advanced course: **Tuesdays, 4-5 p.m.**

GREEK.

Lectures on Plato, *Apology* and *Crito*, and on Homer, *Iliad*, bk. xxii.—**Mondays and Thursdays, 4-5 p.m.**

Lectures on Composition, **Wednesdays, 4-5 p.m.** Students should provide themselves with copies of Sidgwick's "Greek Prose Composition."

Lectures on Latin and on Greek for students who intend to take the examinations of the University of New Zealand for Scholarships, Honours, or degree of M.A.: These will be, as usual, specially arranged, when the Professor has met those who propose to attend. Such students should call upon him at the earliest possible date in the First Term. There are usually four lectures on Latin in the week.

ENGLISH LANGUAGE AND LITERATURE.

(PROFESSOR EGERTON.)

ENGLISH LITERATURE.

The following courses of Lectures will be delivered in the Session of 1908 :—

I.—The History of English Literature from 1688 to 1744.

The subject will be treated in the following order :—

(*a*) General Introduction to the Period. Literary Influences of the Age.

(*b*) The Poets: Dryden's later works, Pope, Prior, Gay, Parnell, Shenstone, Thomson, Young, Ramsay.

(*c*) Prose Writers: Swift, Addison, Steele, Arbuthnot, Defoe, Locke, Bolingbroke, Berkeley, Butler.

(*d*) Dramatists: Southern, Congreve, Vanbrugh and Farquhar. Addison, Steele, Rowe, Cibber, Gay, Fielding.

Text-book recommended :—

"The Student's Manual of English Literature."

Further information as to texts, etc., will be given in lectures.

Hours of Lectures.—Wednesday, 3—4 p.m. and 7—8 p.m. The evening lecture is a repetition of that delivered in the afternoon.

II.—Courses of Lectures will be delivered on the following works, in the order named :—

Shakspere—*King Henry IV.*, Parts I. and II. (Rolfe's edition) ; *King Henry V.* (Clarendon Press).

Lamb's *Essays of Elia*, edited (in two volumes) by Hallward and Hill, in Macmillan's English Classics.

From time to time, students who desire to keep terms will be required to write essays upon subjects arising out of the above works, and instruction in English Composition will be given in connection therewith.

Hours of Lectures—Thursday, 12 noon—1 p.m.; Saturday, 9—10 a.m. The latter lecture is a repetition of the former.

English Language.

III.—The Origin, Structure, and History of the English Language.

Text-books.—*The Anglo-Saxon Primer* (Sweet). *Specimens of Early English*, Part II. (Morris and Skeat). *Historical Outlines of English Accidence* (Bradley and Kellner). Those who require a more elementary text-book of English Philology are recommended to procure Skeat's *Primer of English Etymology*, or Lowe's *English Language.*

Hours of Lectures—First Year, Tuesday, 6—7 p.m. ; Second Year, Tuesday, 7—8 p.m.

SYLLABUS OF LECTURES.

Honours Course.

The course for Honours and M.A. usually requires at least two years' reading. Undergraduates who intend to read for Honours or Scholarships are recommended to communicate to the Professor as early as possible their intention of so doing.

The hours of these Lectures are subject to special arrangement.

Early English Text Society's Prize.

The Early English Text Society has offered as a prize, open to those attending lectures at Auckland University College, three volumes of its publications. The books are valuable reprints of Early English Texts.

The examination papers will be set by the Professor of English Language and Literature on the following course:—Elements of Anglo-Saxon Grammar, Sweet's *Anglo-Saxon Reader*, Morris and Skeat's *Specimens of Early English* (Parts I. and II.)

PURE MATHEMATICS (Professor Segar).

The following courses will be delivered on Elementary Pure Mathematics up to the ordinary standard required for the various Bachelor degrees:—

(i.) *Algebra.*—This course assumes a fair knowledge of the subject as prescribed for Matriculation. Hours of Lectures, Wednesday, 5—6 p.m., and Friday, 6—7 p.m.

(ii.) *Trigonometry.*—Hour of Lecture, Saturday, 10—11 a.m.

(iii.) *Geometry.*—Hour of Lecture, Saturday, 11 a.m.—12 noon.

To pass the Annual Examination for the keeping of terms, *Candidates for a Second or Third Year's Terms will be expected to reach a higher standard than Candidates for a First Year's Terms.* The papers will include certain questions, answers to which will not be expected in order to qualify for any of the several classes, but credit will be given for these in assigning the order of merit.

Lectures on the more advanced parts of Mathematics will be arranged according to requirements.

APPLIED MATHEMATICS (PROFESSOR SEGAR).

Mechanics will be treated during the first Two Terms, and Hydrostatics during the Third Term, each to the ordinary standard required for the various Bachelor degrees.

Hours of Lectures—Wednesday, 8—9 p.m., and Friday, 7—8 p.m.

For Annual Examination and advanced lectures read as under Pure Mathematics.

CHEMISTRY (PROFESSOR BROWN).

GENERAL COURSE.

The characteristics of chemical action—The laws of chemical combination—The atomic theory—Atomic weights and chemical symbols—Empirical, rational, and constitutional formulæ—The physical and chemical properties and the modes of preparation of the more important elements and of their chief compounds, including simple carbon compounds.

Hour of Lectures—Monday and Thursday, 5 p.m.

ADVANCED COURSE.

A course of lectures on Chemistry of a more advanced character will also be given, and will deal more especially with

theoretical chemistry. The subjects treated will include the determination of molecular and of atomic weights, the classification of the elements and the periodic law, and the relations between heat, light, and electricity, and chemical action.

Hour of Lecture—Monday, 3 p.m.

CHEMICAL LABORATORY.

The Laboratory will be open on Tuesdays from 2 p.m. to 5 p.m., and from 7 p.m. to 9 p.m., on Thursdays from 10 a.m. to 1 p.m., on Fridays from 7 p.m. to 9 p.m., and on Saturdays from 10 a.m. to 1 p.m.

Instruction will be given in the laboratory in all branches of Practical Chemistry, including qualitative and quantitative inorganic and organic analysis, and the preparation of chemical products.

Special facilities will be afforded to those who desire to study Practical Chemistry, as applied to different processes employed in the arts and manufactures.

All apparatus, gas, fuel, and ordinary reagents will be provided by the College; but a deposit of 10s. will be required from each student, to cover the cost of loss and breakage.

EXPERIMENTAL PHYSICS (PROFESSOR BROWN).

SESSION OF 1908.

HEAT, LIGHT, AND SOUND.

FIRST TERM—HEAT.

Introductory—Methods of measurement employed in Physics—Thermometers and pyrometers—Expansion of solids, liquids, and gases—Absolute temperature—Application of the laws of expansion.

Phenomena of fusion, crystallisation, evaporation and ebullition.

Hygrometry—Modes of measuring the hygrometric condition of the atmosphere.

Conduction, radiation, and absorption of heat.

Calorimetry, specific and latent heats—The elements of thermodynamics.

SECOND AND THIRD TERM—LIGHT AND SOUND.

Nature, production, and propagation of light.—The laws of reflection and refraction at plane and spherical surfaces—Prismatic dispersion and spectra—Interference—Double refraction and plane polarisation—The principal optical instruments and vision.

Sensation and external cause of sound—Mode of its transmission—Velocity of sound—Elements of a musical sound—Loudness and extent of vibration—Pitch and rapidity of vibration—Motion of sounding strings—Motion of sounding air columns—Resonance—Analysis of compound sounds—Interference—Beats—Consonance and dissonance.

Hour of Lectures—Tuesday and Friday, at noon.

EXPERIMENTAL PHYSICS (PROFESSOR BROWN).

SESSION OF 1909.

MAGNETISM AND ELECTRICITY.

FIRST TERM.

Introductory—Methods of measurement employed in Physics.

Magnetism—Magnetic attraction and repulsion—Magnetic induction—Measurement of magnetic forces—Terrestrial magnetism.

Frictional electricity—Fundamental experiments of attraction and repulsion—Phenomena of induction—Electrical machines—Condensers—Measurements of potential, capacity, and quantity. Electrometers. Atmospheric electricity.

SECOND AND THIRD TERMS.

Current electricity—Mutual action of magnets and currents—Galvanometers—Electrolysis—Thermal effects of the electric current—Resistance—Measurements of current, of resistance, and of electromotive force.

Production of electric currents—The voltaic cell—Thermo-electric currents—Induced currents—Magneto-electric and dynamo electric machines.

Application of electricity to lighting, signalling, and the transmission of power.

Hour of Lectures—Tuesday and Friday, at noon.

Note.—The course of instruction in Physics extends over two years; but the arrangement is such that students may begin the study of Physics in any year.

PHYSICAL LABORATORY.

Practical instruction in Physics will be given in the Laboratory, which will be open on Tuesdays from 2 p.m. to 5 p.m., and from 7 p.m. to 9 p.m., on Thursdays from 10 a.m. to 1 p.m., on Fridays from 7 p.m. to 9 p.m., and on Saturdays from 10 a.m. to 1 p.m.

BIOLOGY (PROFESSOR THOMAS).

1. GENERAL BIOLOGY.

Students who take either Botany or Zoology for the B.A. or B.Sc. degree of the New Zealand University, are required to show a knowledge of the elements of General Biology, that

is, of the general phenomena of life. The present course of lectures is intended to cover the ground of the paper in General Biology, and will include the following subjects:—

Structure, physiology, and life-history of a small number of typical organisms, so selected as to illustrate the general principles of Biology—Theory of Evolution—Geographical Distribution of living beings—The Geological Record.

Hour of Lecture—Wednesday, 6 p.m.

Text-books—Parker, *Elementary Biology*; Marshall, *The Frog.*

2. BOTANY.

Students who take Botany for the B.A. degree should attend the three courses—*(a)* General Biology, *(b)* Junior Botany, *(c)* Senior Botany. The three courses may be taken in one year, but any student who can devote two years to the subject should defer attendance at the Senior Botany until the second year

JUNIOR COURSE.

The form and structure of flowering plants—Fertilisation of flowers—Dispersion of seeds—The more important orders of native and introduced flowering plants.

Hour of Lecture—Tuesday, 7 p.m.

SENIOR COURSE.

The principal characters of the classes of plants—The structure, physiology, and life-history of the prescribed types of plants for the Bachelor of Arts degree.

Hour of Lecture—Monday, 7 p.m.

Text-books—Either Strasburger's *Text-book of Botany*, or Vines' *Elementary Text-book of Botany*. Students taking the Senior Course will require also Scott, *Structural Botany*; Bower, *Practical Botany for Beginners.*

SYLLABUS OF LECTURES.

Honours Course.

Special arrangements will be made for students reading Botany for Honours.

3. Zoology.

The principal characters of the chief classes of animals—The structure and life-history of examples of the most important groups of animals—The elements of comparative embryology.

Hour of Lecture—Monday, 12 noon.

Text-books—J. A. Thomson, *Outlines of Zoology;* Marshall and Hurst, *Practical Zoology.*

BIOLOGICAL LABORATORY.

The Laboratory will be open during the following hours:—Monday, 2 p.m. to 5 p.m.; Wednesday, 7 p.m. to 9 p.m.; Wednesday and Saturday, 10 a.m. to 1 p.m.

Classes will be formed for the practical work in Botany or Zoology required for the Bachelor of Arts or Bachelor of Science degree, or for the Medical Intermediate Examination. The days of the classes will be arranged to suit the convenience of students, and must then be adhered to.

Facilities will be offered to persons not preparing for examinations, but who desire to learn the use of the microscope and methods of studying plants and animals.

Note.—Special aid will be given to those who desire to learn the use of the miscroscope and the applications of biology in the arts and manufactures.

SYLLABUS OF LECTURES.

GEOLOGY (PROFESSOR THOMAS).

The ordinary course of instruction for students who take Geology for the B.A. or B.Sc. degree is completed in one year, and includes two lectures weekly and attendance at the Laboratory twice a week. Those, however, who desire to do so, may spread the practical work over two years, attending once a week.

LECTURES.

Crust of the earth—Rocks and minerals—The geological action of the air, water, ice, and living organisms—Volcanoes and volcanic action—Earthquakes—Metamorphism—Secular movements of the crust.

Architecture of the earth's crust.

Palæontology—Fossils and their uses—General structure of the classes of plants and animals found in the fossil state—Generalisations of Palæontology and their bearing on the theory of Evolution.

Chronological classification of rocks—Geological eras and periods—Geology of New Zealand—The characteristic features of the Geological periods.

Hour of Lectures—Tuesday and Friday, 5 p.m.

Text-books—Geikie's *Class-book of Geology*, or Geikie's *Text-book of Geology*; Wood's *Elementary Palæontology*.

GEOLOGICAL LABORATORY.

The Laboratory will be open during the following hours:—Monday, 2 p.m. to 5 p.m.; Wednesday, 7 p.m. to 9 p.m.; Wednesday and Saturday, 10 a.m. to 1 p.m.

Practical instruction will be given in the following subjects:—The properties and identification of minerals—Rock-forming minerals—Characters of rocks—Structure of typical genera of fossil plants and animals—Characteristic fossils of the geological periods.

Excursions will be arranged for the study of Field Geology.

FRENCH (MAXWELL WALKER, M.A.)

The following courses will be delivered during the session of 1908:—

I.—TRANSLATION:—

(*a*) Lectures on the following prescribed works—

Corneille: *Le Cid.*

Molière: *L'Avare.*

Taine: *Voyage aux Pyrénées.*

Hour of Lecture.—Monday, 5—6 p.m

(*b*) Sight Translation.—Lectures will be given each week during the third term.

Hour of Lecture.—Friday, 5—6 p.m.

II.—COMPOSITION:—

(*a*) *Junior.*—Intended for students who have not had sufficient practice in continuous French prose.

Hour of Lecture.—Wednesday, 6—7 p.m.

(*b*) *Senior.*—In this class, passages are set each week, the standard of difficulty rising gradually until, in the second term, it reaches that of the B.A. Pass Examination.

Hour of Lecture.—Thursday, 5—6 p.m.

III.—THE HISTORY OF FRENCH LITERATURE during the period 1608-1715. These lectures will be delivered during the first and second terms.

Text-books recommended.—Saintsbury's "Short History of French Literature," and Kastner and Atkins' "Short History of French Literature."

Hour of Lecture.—Friday, 5—6 p.m.

IV.—PRONUNCIATION.—Lectures on French Pronunciation to suit the requirements of the B.A. Degree will be given on Tuesdays, at 5—6 p.m.

V.—COMMERCIAL FRENCH.—Lectures to meet the requirements of the Degree of Bachelor of Commerce will be delivered during the year. For further information see page 54.

Hour of Lecture.—Tuesday, 6—7 p.m.

VI.—"HONOURS" AND SCHOLARSHIP COURSES.—These are subject to special arrangement. At present the hours of lectures are Tuesday, 10—12 noon, and Thursday, 11—12 noon.

Students who intend to read for "Honours" or Scholarships should communicate with the Lecturer as early as possible.

GERMAN (MAXWELL WALKER, M.A.)

The following courses will be delivered during the session :—

I.—TRANSLATION.—Lectures on the following prescribed works : —

Schiller : *Maria Stuart.*

Goethe : *Iphigenie.*

Riehl : *Culturgeschichtliche Novellen.*

Hour of Lecture.—Monday, 4—5 p.m.

II.—COMPOSITION.—Passages graded up to the standard of the B.A. Examination are set week by week.

Hour of Lecture.—Thursday, 4—5 p.m.

III.—THE HISTORY OF GERMAN LITERATURE.

Hour of Lecture.—Wednesday, 4—5 p.m.

IV.—COMMERCIAL GERMAN.—Lectures to meet the requirements of the Degree of Bachelor of Commerce will be delivered during the year. Further information may be obtained from page 54.

Hour of Lecture—Wednesday, 5—6 p.m.

Text-book recommended—Hein and Becker's "Commercial German," 2 vols.

N.B.—Provision will also be made for conversation and sight translation.

JURISPRUDENCE AND CONSTITUTIONAL HISTORY.

(R. N. MOODY, LL.M.)

The course will embrace the following subjects:—

(a) JURISPRUDENCE:—

Text-books.—T. E. Holland's "Jurisprudence," Hunter's "Introduction to Roman Law."

To be consulted.—Maine's "Ancient Law" and (2nd Year Students) Austin's "Jurisprudence," students' edition.

Hour of Lecture—Monday, 8—9 p.m.

(b) CONSTITUTIONAL HISTORY:—

Text-books.—Feilden's "Short History of the Constitution," Thomas' "Leading Cases in Constitutional Law."

To be consulted.—Taswell-Langmead's "Constitutional History."

Hour of Lecture—Thursday, 8—9 p.m.

(Hours of Lectures are subject to alteration.)

LAW.

(R. N. MOODY, LL.M.)

The course will embrace the following subjects:—

(a) CONTRACTS:—

Text-book.—Anson's "Law of Contracts."

Hour of Lecture—Tuesday, 5—6 p.m.

(b) PROPERTY, PT. II.:—

Text-books.—Snell's "Equity" and Blyth's "Analysis of Snell's Equity," Williams on "Real Property."

Hour of Lecture—Friday, 5—6 p.m.

The standard will be that required for the final LL.B. and Solicitors' Professional Examination.

(Hours of Lectures are subject to alteration.)

COMMERCIAL LAW.

Lectures will include:—

(1) General principles of the Law of Contract, with special attention to Negotiable Instruments, Companies, Partnership, Agency, Suretyship, Insurance, Sale of Goods, and Carriage of Goods by land and sea.

(2) General principles of the Law of Personal Property, with special attention to Chattel Securities, Trusts, and Bankruptcy.

It is necessary that students should have access to the Statutes bearing upon the foregoing topics. Text-book recommended—W. D. Edwards' "Commercial Law."

EDUCATION.

(H. A. E. MILNES, B.Sc., Lond.)

SENIOR COURSE.

Revision of Syllabus, together with extensive study of:—

Plato's Republic.
The Great Didactic—Comenius.
Gargantua—Rabelais.
Scholemaster—Ascham.
Tractate on Education—Milton.
Thoughts Concerning Education—Locke.
Emile—Rousseau.
Education—Spencer.

Copies of these books lent from the Training College Library.

Hour of Lecture to be arranged.

EDUCATION.

JUNIOR COURSE.

Two hours per week, at times to be arranged. The whole Syllabus is dealt with "extensively," the reading of the classics of education being deferred to the second year.

Text-books required—

William James' Text-book of Psychology.
Raymont's Principles of Teaching.
Adams' Herbartian Psychology.
Hill's Physiology.

Copies of other books referred to in the course are in the Training College Library, and available for all students.

ECONOMICS.

(J. P. Grossmann, M.A.)

Separate courses of lectures will be delivered for first and second year students; and if necessary an elementary class will be started for beginners.

In accordance with the regulations for the B.A. examinations, the lectures will cover:—

(1) The general principles of Economics; population; labour, and its organisation; wages; land tenures; socialism; land rating and taxation.

(2) Principles of banking and finance; trade and exchange; functions of government; State regulation of labour and labour disputes.

Books recommended—

Walker's "Brief Political Economy."

Nicholson's "Elements of Political Economy."

Students intending to read Economics for Senior Scholarship or Honours are requested to consult the Lecturer as to their work.

ENGLISH HISTORY.

(J. P. Grossmann, M.A.)

The period set for this year is included between 1702 and 1760. Lectures on this period will be delivered; but students preparing for the B.A. examination must also have a general knowledge of English History from A.D. 449 to 1850.

Books recommended—

(*a*) For general history—

Gardiner's "Students' History."

(*b*) For special period—

Gardiner's "Students' History."
Greene's "Short History."
Tout's "Advanced English History."

MENTAL SCIENCE.

(J. P. Grossmann, M.A.)

An elementary class for beginners will probably be formed. Second year students will take Logic, Psychology, and Ethics in that order. Lectures on these subjects will be delivered, covering the B.A. Syllabus.

Books recommended—

Jevons's "Elementary Lessons in Logic."
James's "Manual of Psychology."
Mackenzie's "Manual of Ethics."

For more advanced reading—

Welton's "Logic."
Stout's "Psychology."
Muirhead's "Manual of Ethics."

SCHOOL OF COMMERCE.

The work done in the School of Commerce covers the preparation required for two distinct tests:—

(1) The examination for diploma of Bachelor of Commerce conferred by the University of New Zealand.

(2) The examination for certificate of Associate of Commerce granted by Auckland University College.

I.—BACHELOR OF COMMERCE COURSE.

The Degree of Bachelor of Commerce can be obtained by passing two examinations: the first not less than two years after matriculation, the second not less than one year after the first.

Candidates for the Degree must have matriculated; and those who have not passed matriculation in Algebra and Geometry must pass in those subjects before completing the first examination. It is necessary for candidates to have kept two years' terms before sitting for the first section of the B. Com., and three years' terms before completing the degree.

Each examination includes six subjects, or twelve subjects in all for the Degree. At the option of candidates, two subjects of the first section may be taken at the end of the first year after matriculation, leaving four for the end of the second year.

The subjects for the First Examination are:—

(*a*) French or German, as for B.A. Degree.

(*b*) History—General, from 1760 to 1890.

(*c*) Geography (two papers)—Physical and Commercial.

(*d*) Economics (two papers), as for B.A. Degree.

(*e*) Mathematics—Algebra, as for B.A. Degree.

Or one of the following:—

Physics, as for the Intermediate Medical Examination (v. N.Z. University Calendar).

Inorganic Chemistry, as for the Intermediate Medical Examination (v. N.Z. University Calendar).

Physical Geology, as for the B.A. Degree (v. p. 43).

(*f*) Accounting (two papers).

The subjects for the Second Examination are:—

(*a*) Commercial Law.

(*b*) Statistical Method.

(*c*) Commercial French or German.

(*d*) Accountancy or Algebra, or one of the sciences above specified not previously taken.

(*e*) and (*f*) Any two of the following:—

(1) Actuarial Mathematics.

(2) Industrial Law.

(3) Economic History.

(4) Currency and Banking.

II.—ASSOCIATE OF COMMERCE COURSE.

To meet the requirements of students who may not have the time or the opportunity to take up the whole of the B. Com. course, the Auckland University College Council has established an Associateship in Commerce in accordance with the following regulations:—

(1) That the diploma of Associate in the School of Commerce be granted to students who have attended lectures in the School of Commerce for two years, and have passed during that time an annual examination in each of six separate subjects.

(2) That the subjects required be the following:—

(*a*) Accountancy.

(*b*) Economics.

(*c*) One Modern Language (French or German), commercially treated.

(*d*) Commercial Law.

(*e*) Commercial Geography.

(*f*) Currency and Banking.

(3) That three of these subjects be taken in each year, and that the standard accepted for the Associateship be somewhat lower than that indicated in the complete School of Commerce syllabus for the B. Com. Degree.

(4) That candidates must have attended at least three-fourths of the lectures in those subjects delivered during the year. Exemption from this rule can be granted only on special application being made to the College Council, and for reasons assigned by the candidate, and considered sufficient by the Council.

(5) That successful candidates receive from the College a formally-drawn and signed Certificate or Diploma of Associateship in the School of Commerce.

It will be observed that Matriculation, which is required by the B. Com. regulations, is NOT demanded as a preliminary qualification for the Associateship in Commerce.

LECTURES.

During the current session lectures will be delivered on the following subjects:—

MODERN LANGUAGES (FRENCH OR GERMAN).

The work for the first section of the B. Com. Degree is the same as for the B.A. Degree, and comprises translation from and into the language taken, together with the study of grammar, pronunciation, prescribed works, and a period of literature. Full particulars are given in the College Syllabus.

The course for the second section of the B. Com. Degree will include lectures on—

(1) Commercial Correspondence in French or German.

(2) Translation from French or German of passages dealing with commercial questions.

Text-books recommended:—

(*a*) FRENCH:

Poole and Becker's "Commercial French" (2 vols.).

Glauser and Poole's "French Commercial Correspondence" (1 vol.).

(*b*) GERMAN:

Hein and Becker's "Commercial German" (2 vols.).

HISTORY—MODERN (1760-1890).

The lectures will cover the chief features of the Revolutionary period, and will deal with the subsequent growth of the Great Powers, and the development of Modern Europe, America, and the Empire.

SYLLABUS OF LECTURES.

Books recommended:—

For English History—

Gardiner's "Students' History."

For Continental History—

Kirkpatrick's "Lectures on the History of the 19th Century."

Hassall's "Brief Survey of European History."

GEOGRAPHY—PHYSICAL AND COMMERCIAL.

For Physical Geography a simple text-book, such as Hughes', is recommended to begin with. For further reading, Students are advised to consult the Lecturer.

Lectures will be delivered on the general principles of Commercial Geography, more especially as applied to the condition and prospects of the colonies.

Text-books—

Chisholm's "Smaller Commercial Geography."

Marshall's "Geography of New Zealand."

"New Zealand Official Year Book" and other statistical publications.

Students are recommended to consult, or to subscribe to, such periodicals as "The World's Work" (American ed.).

The special features of the course as laid down in the University regulations for the B. Com. Degree are as follows:—

PHYSICAL GEOGRAPHY.

Measurement of time; its relation to the earth's rotation; inclination of the earth's axis; variation of length of day and night; the four seasons; the zones. Methods of determining

longitude and latitude; great circles; small circles; maps, how constructed; the conical, equidistant, and Mercator's projections; scale of maps; great circle sailing; rhumb-line sailing. The atmosphere; isothermals; rainfall, dew-points; winds, land and sea breezes, steady winds, seasonal winds. Climate; causes affecting climate. Changes in the earth's surface so far as they affect commerce. Distribution of plants and animals useful to commerce.

COMMERCIAL GEOGRAPHY.

The producing and distributing of commercial commodities, especially food and foodstuffs, raw and manufactured products, and minerals; the various facilities for trade and hindrances to trade, with special reference to Great Britain, to New Zealand, to Australia and the Pacific Islands, and to America—dealing with the chief geographical and local conditions under which commodities are produced and distributed, with the chief trade-routes and means of transit, with currencies, with social and political conditions affecting or likely to affect trade with New Zealand, with ports or harbours, coaling stations; the chief post and telegraph routes; the distribution of population, of minerals, of forests, and of vegetable products; the necessary conditions of development in manufactures, agriculture, and commerce; the distribution of industries.

ECONOMICS.

The lectures will follow the Syllabus drawn up for the ordinary B.A. course, including general economic principles, industrial organisation, land tenure, taxation, money, credit, banking, foreign exchanges, international trade, State regulation of labour, functions of government.

(v. p. 49.)

If necessary an elementary class will be arranged for beginners.

Text-books—

Walker's "Brief Political Economy."

Nicholson's "Elements of Political Economy."

COMMERCIAL LAW.

Lectures will include—

(1) General principles of the Law of Contract, with special attention to Negotiable Instruments, Companies, Partnership, Agency, Insurance, Sale of Goods, and Carriage of Goods by land and sea, Bankruptcy.

It is necessary that students should have access to the Statutes bearing upon the foregoing topics. Text-book recommended—W. D. Edwards' "Commercial Law."

ACCOUNTING.

The Accountancy Lectures embrace a complete exposition of Office Practice upon the most modern lines, in which commercial terms will be defined and forms illustrated. All necessary operations in connection with the Purchase and Sale of goods will be dealt with in detail, such as Indenting, Invoicing, Shipping, Customs, Costing, Methods of Payment, Cheques, Bills, Bank Drafts, etc.; Book-keeping by single and and double entry, Loose Leaf Ledger and Card system, Check systems; Cable Coding, Metrical Weights and Measures, various methods of Consignment Accounts; Prevention, Detection, and Rectification of Errors; Executorship and Partnership Accounts; Income Tax Returns; Bankruptcy Accounts;

Company Working, Book-keeping and Liquidation; Sinking and Reserve Funds; Auditing; Statistical Accounts; Principles and Practice of Insurance, Fire, Life, and Marine, etc.

Attention is specially directed to a course of Book-keeping which will be issued to the Students for home study and practice. This will be prepared on a new method, in which much of the usual but unnecessary work of the Countinghouse is dispensed with.

Text-books recommended—

Adgie's "Book-keeping," parts 1, 2, 3.

Barton's "20th Century Book-keeping," second edition.

For particulars of the courses in Algebra, Physics, Inorganic Chemistry and Geology, students may consult the College and University Calendars, and are also recommended to apply for information to the Lecturers in these subjects.

In addition to the subjects mentioned, lectures will be delivered, when needed, in all other subjects required to complete the B. Com. course. Other subjects for the second section of the B. Com. have been defined as follows:—

STATISTICAL METHOD (One paper):—

Data and Forms of Returns; Tabulation and other forms of reduction of data; Averages and Type; Distribution about the average, and measurement of dispersion, ascertainment of probability of given deviations. Accuracy, and estimation of limits of error; proportional error in results caused by errors in original data; the use of graphical methods in statistics. The use of index numbers. The commoner forms of statistical fallacy.

ACCOUNTANCY (Two papers):—

Forms and Accounts adapted to different classes of undertakings; Analysis of Accounts with a view to computation of earnings and values. Balance-sheets,

Departmental Accounts, Cost Accounts; Sinking Funds, Depreciation; Methods of Remuneration, Fixed Charges; Exportation and Importation.

ACTUARIAL MATHEMATICS (One paper):—

The use of logarithms and of easy series as applied to interest, mortality-tables, insurance, and annuities. Probabilities with reference to easy problems connected with life expectation, insurance, annuities, rent, prices, and wages, and other matters of applied economics. Graphical methods applied to easy economic problems; the treatment of errors, and the method of least squares as applied to such problems. Approximate methods of solving easy actuarial problems; limits of error in the approximations.

INDUSTRIAL LAW (One paper):—

The law of master and servant with special reference to the statutory law of New Zealand, dealing with contracts for employment, age, sex, and educational standard of employees; hours and conditions of labour; payment, recovery, and protection of wages; compensation for injury, and settlement of disputes.

ECONOMIC HISTORY (One paper):—

The outlines of the industrial and commercial development of Great Britain, the questions being mainly chosen so as to deal with the period subsequent to 1760, and to include:—The effects of the introduction of machinery upon industry and trade; changes in industrial organisation; the development of transport, and the distribution of products; the economic effect of the Napoleonic wars; movements of foreign trade; the effects of protective tariffs upon production and distribution; trade unionism and its effects in raising or lowering the standard of wages and industrial efficiency; the influence of the co-operative movement; the rise and growth of large companies and trusts; the growth of banking; the adoption of the gold standard; and the history of general prices.

CURRENCY AND BANKING (One paper):—

Functions of money; the evolution of modern money; currency; circulation; quantity of money; the gold standard; the appreciation of gold; bimetallism; convertible and inconvertible paper money; the relation of currency and banking; money and exchange; foreign indebtedness. Bank capital, its function; deposits, importance and growth; banking profits, advances, discounts; foreign exchanges; financing of exports and imports; banking instruments; the money market; bank rate; commercial crises; State bank; joint-stock banks; savings' banks; the gold reserve.

GENERAL.

The Lecturers in the School of Commerce are prepared to give all necessary information to intending students as to the books to be used, and the course of study to be followed.

The lectures can be attended by anyone, whether matriculated or not, on payment of the ordinary College fees.

Any one lecture, or more, can be taken by anyone who does not desire to take the whole course.

The hours of lecture are subject to alteration to suit the convenience of students.

Fees—10s per term for one hour per week, £1 for two hours—are payable to the Registrar at the University College within fourteen days of the commencement of any term. Students whose fees remain unpaid are liable to a fine of 2s 6d per month, or part of month, for each subject.

Lectures begin, as for the Arts course, with the first week in March. Intending students are requested to enter their names on the College books before that date, so as not to delay the work of the session by coming into the classes later on.

TIME TABLE.

HOURS.	MONDAY.	TUESDAY.	WEDNESDAY.	THURSDAY.	FRIDAY.
A.M. 8—9			Commercial Law		
12—1 p.m.		Physics			Physics
P.M. 4—5	German (prescribed books)		German (Literature and unseen)	German (Composition)	
5—6	French (prescribed books) Economics Chemistry	French (pronunciation) Geology	Commercial German Algebra	French (Composition) Economics Chemistry	French (Literature and unseen) Geology
6—7		Com. French			Com. French Algebra
7—8	Economics (1st year)			Economics (1st year)	Com. German
8—9	Accounting	Modern History		Accounting	Com. Geography

SCHOOL OF MINES.

The School of Mines was established in 1906 to provide instruction for those desirous of becoming Mining or Metallurgical Engineers. The courses provided lead up to:—

(1) The Degree of Bachelor of Engineering of the New Zealand University in either Mining or Metallurgy.

or (2) The Diploma of Associate of the Auckland University College School of Mines in Mining or Metallurgy.

The approximate cost of the two courses is given on pages 70-71.

PARTICULARS OF THE COURSE FOR THE DEGREE.

Students must first matriculate. The course of study for the degree in either Mining or Metallurgy occupies four years, as set forth on page 65. Up to the end of the third year, the courses are identical, but in the fourth year they diverge, and the student must elect which of the two he will take for the degree. An extra year is thus required in order to take the degree in both subjects. Students are strongly advised to take both if possible, as it is almost impossible to foretell which of the two will finally claim most of their attention, and both are equally important.

Practical Experience in Mines and Works.

After matriculation, and *before* obtaining the degree, the student in

(1) Mining must spend at least 12 months in practical work, partly in metal, and partly in coal mines; and if in

(2) Metallurgy, at least nine months in metallurgical works.

Before making arrangements for such work, the student is advised to consult the Professor of Mining.

Ambulance.

Candidates for the degree must obtain the St. John Ambulance First Aid Certificate.

Regulations.

Students proceeding to the degree must comply with the University statutes and regulations concerning the keeping of terms, passing of annual and other examinations, etc., etc.*

The following regulations apply to undergraduates in Engineering (Mining or Metallurgy):—

1. Undergraduates in order to keep terms for the year in any subject, shall (a) attend during the year *three-fourths* of the prescribed lectures and laboratory classes, and (b) pass the terminal examinations as required by the teacher of that subject; or (c) where terminal examinations are not given, he must pass the annual examination in that subject.

2. Undergraduates, in order to keep terms in the first, second, or third year, must keep terms in four of the subjects prescribed for that year. For their fourth year they must keep terms in all the subjects which they intend to take to complete their degree.

Regulation V. (Univ. Cal., p. 123) requires candidates for any examination in Engineering to give notice to the Chancellor "not later than the 1st day of May preceding the examination" of the subjects in which he desires to be examined.

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* See Calendar of the University of New Zealand, price 2s. 6d., from Messrs. Upton and Co., and other booksellers.

Candidates must also forward their Certificates of Attendance "to the University Registrar (Wellington) at least 15 days before the date of the examination." (See Univ. Cal., p. 128).

In the case of Laboratory work students must also forward certificates that they have passed the practical examinations required in the separate subjects.

COURSE OF STUDY FOR THE B.E. DEGREE (MINING OR METALLURGY).

(For Time-table see pp. 84 and 85.)

First and Second Years.

The first and second years are occupied with:—

Mathematics and Mechanics.

Physics.

Chemistry.

Freehand Mechanical Drawing.

Descriptive Geometry.

Geology (Physical and Structural).

The examination in these subjects constitutes what is known as the First Examination for the B.E. Degree (Mining or Metallurgical). The examination in the first four of these subjects may be taken at the end of the first year, and the candidate must pass in at least two of these four subjects at that examination.

At the end of the second year he must pass in the remainder of the six subjects.

If he fail in a single subject, provision is made for re-examination in that subject after the student has obtained further instruction in it (see University Calendar, p. 140). In the meantime he may start the work of his third year, as required for the Second Examination.

As is explained on p. 40 the above course in Physics at the A.U.C. occupies two years, so that it is impossible to take the University examination in Physics until the end of the second year. Many students find it advantageous to take two years for Chemistry also, but that is not essential.

THIRD YEAR.

The subjects for the third year are:—

GEOLOGY—*(a)* Petrography.
(b) Elementary Stratigraphical Geology.
(c) Mining Geology.

MINERALOGY.

APPLIED MECHANICS.

STEAM ENGINE.

MECHANICAL DRAWING.

QUANTITATIVE CHEMICAL ANALYSIS.

ELEMENTS OF THE DIFFERENTIAL AND INTEGRAL CALCULUS (optional).

The examination in these subjects is termed the Second Examination. It takes place at the end of the third year, and may not be attempted until the candidate has passed the whole of his First Examination.

FOURTH YEAR.

Up to the end of the third year the Mining and Metallurgical courses are identical, but in the fourth year they diverge, and the student must elect which division he will take for the degree. The subjects are as follows:—

B.E. IN MINING.	B.E. IN METALLURGY.
MINING.	METALLURGY.
LAND AND MINE SURVEYING	ASSAYING (treated more fully) AND PRACTICAL METALLURGY.
ASSAYING.	DRESSING OF MINERALS.
DRESSING OF MINERALS.	ELEMENTARY ELECTRICAL ENGINEERING.
ELEMENTARY ELECTRICAL ENGINEERING.	

PARTICULARS OF THE COURSE FOR THE ASSOCIATESHIP.

ENTRANCE—

Students who have not matriculated must produce satisfactory evidence of their knowledge of the following subjects, viz. :—

ENGLISH—

English Composition, Spelling, Punctuation, and Grammar (not Historical).

ARITHMETIC—

Fundamental Rules, Vulgar and Decimal Fractions, Approximations, Proportion, Percentages (including Interest, Profit and Loss), Stocks, Square Root, Metric System. Areas of Plane Rectilinear Figures and Circles, Mensuration of the Prism, Pyramid, Sphere, Circular Cylinder, and Circular Cone.

ALGEBRA—

Fundamental Operations, Factors, Fractions, Simple Equations involving one or two unknown quantities, and easy Quadratic Equations involving one unknown quantity; easy Problems.

FREEHAND DRAWING—

Drawing in outline from a cast, or diagram, without measurement.

MODEL DRAWING—

Drawing of geometrical models, vases, or common objects placed upon a drawing board, without measurement.

Communications concerning entrance should reach the Registrar *as early as possible before* the 1st of March. (N.B.—The First Term begins on the 1st Monday of March in each year.)

SYLLABUS OF LECTURES.

The course for the Associateship occupies three years, and may be taken in either Mining or Metallurgy. Up to the end of the second year, the courses are identical, but in the third the student must take either the Mining or Metallurgical division.

A fourth year is thus needed, in order to take the double Associateship.

ASSOCIATESHIP REGULATIONS—

(1) Students proceeding to the Associateship must keep terms in the prescribed subjects.

(2) In order to keep terms in any subject the student shall (a) attend during the year at least nine-tenths of the prescribed lectures and classes in that subject, and (b) pass the terminal examinations as required by the teacher of that subject, or (c), where terminal examinations are not given, he must pass the annual examination in that subject to a higher standard than is required by the College regulations for the mere keeping of terms.

(3) A student who has failed to keep terms in any two of the prescribed subjects for the year will not be allowed to proceed with the work of the following year, but a student who has failed in a single subject of any year may proceed with the work of the following year, provided that he obtains further instruction in that subject and passes the next examination in it.

(4) In extreme cases, where a student has been prevented through illness or through any cause considered good and sufficient by the Professorial Board, from making the required proportion of attendances, the Professorial Board may, upon special application, grant exemption from Clause (a) of Regulation (2). A doctor's certificate will be required in the case of illness.

(5) Students entering for the Associateship in Mining must spend at least six months in practical work, partly in metal and partly in coal mines; or if in Metallurgy, at

least six months in metallurgical works. This experience must be obtained *before* the student enters his Third Year.

(6) Candidates for the Associateship must obtain the St. John Ambulance First Aid Certificate.

COURSE OF STUDY FOR THE ASSOCIATESHIP IN MINING OR METALLURGY.

(For Time-table, see pp. 86 and 87.)

First Year.

The First Year is occupied with:—

Mathematics and Mechanics—See pp. 36 and 37.

Physics—See pp. 38 to 40.

Chemistry—See pp. 37 and 38.

Freehand Mechanical Drawing—See p. 71.

Descriptive Geometry—See pp. 71 and 72.

Geology (Physical and Structural)—See p. 43.

Second Year.

Physics is continued in the second year, and the other subjects are:—

Geology (Petrography, Stratigraphical and Mining Geology)—See pp. 74 and 75.

Mineralogy—See pp. 75 and 76.

Applied Mechanics—See pp. 72 and 73.

Steam and Other Heat Engines—See pp. 73 and 74.

Machine Construction and Drawing—See p. 72.

Quantitative Chemical Analysis—See p. 74.

SYLLABUS OF LECTURES.

THIRD YEAR.

MINING ASSOCIATESHIP—	METALLURGY ASSOCIATESHIP—
MINING—See pp. 80 and 81.	METALLURGY—See pp. 76 and 77.
LAND AND MINE SURVEYING—See p. 81.	PRACTICAL METALLURGY—See pp. 78 and 79.
ASSAYING—See pp. 77 and 78.	ASSAYING—See pp. 77 and 78.
ORE DRESSING—See p. 79.	ORE DRESSING—See p. 79.
ELECTRICAL ENGINEERING (ELEM.)—See p. 79.	ELECTRICAL ENGINEERING (ELEM.)—See p. 79.

COST OF GRADUATION (FEES ONLY) IN MINING OR METALLURGY.

	£ s. d.	Mining. £ s. d	Metallurgy. £ s. d.
Matriculation fee	2 2 0		
1st Year class fees	13 0 0		
2nd Year class fees	18 0 0		
University fee for 1st Exam.	4 4 0		
		37 6 0	37 6 0
3rd Year class fees	19 0 0		
University fee for 2nd Exam.	4 4 0		
		23 4 0	23 4 0
4th Year class fees		18 0 0	19 0 0
University fee for 3rd Exam.	4 4 0		
Graduation fee	7 7 0		
		11 11 0	11 11 0
Total for Mining		£90 1 0	
Total for Metallurgy... ...			£91 1 0
DOUBLE DEGREE IN MINING AND METALLURGY—			
5th Year class fees		9 0 0	8 0 0
University fee for 3rd Exam.		4 4 0	4 4 0
Graduation fee		7 7 0	7 7 0
Total for Double Degree ..		£110 12 0	£110 12 0

COST OF ASSOCIATESHIP (FEES ONLY) IN MINING OR METALLURGY.

	Mining.			Metallurgy.		
	£	s.	d.	£	s.	d.
1st Year class fees	16	0	0	16	0	0
2nd Year	20	0	0	20	0	0
3rd Year	18	0	0	19	0	0
Total	£54	0	0	£55	0	0
DOUBLE ASSOCIATESHIP (MINING AND METALLURGY)—						
4th Year class fees	9	0	0	8	0	0
Total for Double Associateship ...	£63	0	0	£63	0	0

SYLLABUS OF SCHOOL OF MINES' SUBJECTS.

FREEHAND MECHANICAL DRAWING—

Friday, 10 to 12.

Evening Class, see Time-table on p. 89.

Sketching from diagrams. Sketching in elevation and plan or perspective, structures, machines or models, and fully dimensioning the same with a view to the production of working drawings.

Students must provide themselves with a half-imperial drawing-board, which will also be used in Machine Drawing and Descriptive Geometry.

DESCRIPTIVE GEOMETRY—

Thursdays, 3 to 5 p.m.

Evening Class, see Time-table on p. 89.

Lettering and dimensioning, working to scale, construction to given dimensions of various geometrical figures, locating points, lines, tangents, curves, etc., setting out the ellipse,

hyperbola, parabola, cycloid, and other curves, projection of solids, interpenetration of solids, development of surfaces, surfaces of revolution, projection of shadows, isometrical projection, horizontal projection.

Note.—Students must provide themselves with scales, compasses, set squares, drawing instruments, half-imperial drawing-boards, etc.

MACHINE CONSTRUCTION AND DRAWING—

(SIDNEY E. LAMB, B.Sc., A.R.C.Sc.)

Lectures, Wednesdays, 2 to 3. Office Work, Wednesdays and Thursdays, 3 to 5.

Evening Class, see Time-table on p. 89.

Machine drawings to scale. Preparation of working drawings of mining machinery and plant from outline, data, or sketches; tinting drawings; figuring and lettering. The tracing of drawings and production of blue prints.

Students must provide themselves with all necessary instruments, etc., and before purchasing them should consult the Lecturer.

DIFFERENTIAL AND INTEGRAL CALCULUS—

(Professor H. W. SEGAR, M.A.)

Students taking the third year of the degree course are strongly advised to take this subject as an aid to the Applied Mechanics and Steam Engine lectures.

The hours will be arranged to suit those applying for the subject so far as is possible.

APPLIED MECHANICS—

(SIDNEY E. LAMB, B.Sc., A.M.I.M.E.)

Lectures, Monday and Friday, 10 to 11.

Laboratory, Tuesday, 10 to 12.

Evening Class, see Time-table on p. 89.

The equilibrium of uniplanar forces. Friction. Design of trestles and simple structures. Arches, Foundations, Piles.

Properties of Materials used in Engineering. Their manufacture and preservation. Hooke's Law. Testing of materials. Joints for wood.

Strength of cylindrical shells, riveted joints, beams, girders, and shafts. Deflection of springs.

Mechanical advantage and efficiency of simple appliances or machines. Mechanisms. Velocity and Acceleration diagrams. Energy. Momentum.

Brake Horse Power. The Flywheel and Governor.

Hydraulic Head. Flow of water through orifices and over weirs. Gradient. Water power. Hydraulic motors, Turbines and Pumps. Transmission of water power. Mine Dams, Weirs, and Flumes.

Students will make sketches of various details of machinery, and the lectures will be supplemented by Practical Work in the Laboratory, and by visits to Engineering Works.

TEXT BOOKS.—Goodman's "Applied Mechanics" and Duncan's "Applied Mechanics."

STEAM AND OTHER HEAT ENGINES—

(SIDNEY E. LAMB, B.Sc., A.R.C.Sc.)

Lectures—Monday and Friday, 11 to 12 a.m.; and Tutorial, Monday, 12 to 1 p.m.

Evening Class, see Time-table on p. 89.

History. The Indicator and its diagrams. Average Pressure. I.H.P.

Initial condensation. Economical expansion. Laws of expansion. Compounding. Crank Effort Diagrams.

Valves. Zeuner valve diagrams. Valve Gears.

The construction and theory of the Flywheel; Governor; Feed, Air, and Centrifugal Pumps, and Condensers.

The testing of engines and boilers.

The construction of Cornish, Lancashire, Marine, and Water Tube Boilers. Efficiency. Strength.

Economisers, Super-heaters, and Mechanical Stokers.

Combustion, Furnace Draught, Calorific and Evaporative Power. Fuel Calorimeters.

The principles of Steam Turbines, Gas and Oil Engines, and Air Compressors. Elementary Thermo-Dynamics.

Management of Engines, Boilers, and Machinery generally.

TEXT BOOK.—Perry's "Steam."

QUANTITATIVE CHEMICAL ANALYSIS (INORGANIC)—

(Prof. F. D. BROWN, M.A.)

Tuesdays, 2 to 5, and Saturdays, 10 to 1.

The gravimetric estimation of lead, silver, copper, mercury, arsenic, antimony, bismuth, tin, aluminium, zinc, calcium, barium, magnesium, and potassium; the estimation of sulphuric, hydrochloric, and silicic acids; the estimation of sulphur in fuel and pyrites.

GEOLOGY—

(Professor A. P. W. THOMAS, M.A.)

PHYSICAL AND STRUCTURAL.

Lectures, Tuesday and Friday, 5 to 6.

Laboratory, Monday, 2 to 5.

PETROGRAPHY, STRATIGRAPHICAL AND MINING GEOLOGY.

Lectures, hours by arrangement.

Laboratory, Wednesday, 10 to 1, and other hours by arrangement, if required.

(*a*) Petrography—Macroscopic characters and minute structure of rocks; classification of rocks according to their nature, composition and mode of origin; methods for the determination of the chemical and mineralogical constitution of rocks; microscopic character of rocks, and the determination of their mineral constituents by means of the microscope and polariscope.

(*b*) Elementary Stratigraphical Geology—The general succession of the geological formations and their leading subdivisions; methods of determining the age and order of formations and their mutual relations; the commoner characteristic fossils considered as tests of age. The chief features of the geographical distribution of geological formations in typical localities and in New Zealand.

(*c*) Mining Geology—The general succession and arrangement of rock formations, with special reference to the position and character of substances of economic value; modes of occurrence of useful minerals. Classification of mineral deposits. Mineral lodes or veins; bedded deposits, seams, and layers; irregular massive deposits, stocks, and stockworks; pockets, nodules, impregnations. Examples of mode of occurrence of the most important minerals. Irregularities in veins and bedded deposits; faults or dislocations, and rules for searching for the faulted or lost portion of a deposit. Chief theories and hypotheses regarding the genesis of mineral deposits. Secondary enrichment of ores.

MINERALOGY AND BLOWPIPE ANALYSIS—

(Professor A. P. W. THOMAS, M.A.)

Laboratory, Monday, 2 to 5. Other hours by arrangement, if required.

Systems of crystallisation; laws governing the form of crystals; compound crystals; crystallographic notation; crystal measurement and goniometers.

Physical characters of minerals, including the optical characters distinctive of the different crystal-systems.

Chemical constitution of minerals; isomorphism, polymorphism, paramorphism, and pseudomorphism.

Determinative mineralogy; the application of chemical and physical methods, such as specific gravity, the microscope, and the blowpipe.

Classification of minerals; their modes of formation, occurrence, and association. Description of the more important species and varieties, with special consideration of rock-forming minerals and those of commercial value.

METALLURGY—

(Professor A. JARMAN.)

Lectures—Monday, Wednesday, and Friday, 9 to 10.

Special evening course, Tuesday and Friday, 8 to 9.

The day course deals fully with the subject as required for the Degree and Associateship. Lantern slide illustrations are used where possible. The lectures must be supplemented by reading articles from standard works and periodicals as directed. Colloquium is held periodically, each hour dealing with a given branch of the subject, and students must show evidence of consistent reading throughout the course. A written and oral examination is held at the end of each term.

Degree students must elect which group of metals they will take for specialisation (see University Calendar, p. 149). Special reading must be done upon the group chosen, and this will be supplemented by colloquium, and by special lectures if time permits.

The course covers:—

General Metallurgy.—Constitution and physical properties of the chief industrial metals and alloys and the influence upon them of impurities and treatment. Fuels

and refractory materials, their preparation and utilisation. Pyrometry. Furnaces and appliances employed. Materials used in and products resulting from metallurgical operations. Utilisation of by-products and waste materials.

Gold.—Full discussion of the treatment of gold ores by Stamp Batteries, Huntingdon Mills, Pans, Tube Mills, etc., etc. Amalgamation. The Cyanide and Chlorination processes, and the treatment of gold bullion.

Iron and Steel.—Cast Iron, Wrought Iron, Steel, and Special Steels. The influence of composition and treatment upon their properties. Details of the methods of production.

Copper, Lead, Silver, Zinc, and the Minor Metals.—In each case a detailed description will be given of the principal methods of extraction, purification, and adaptation for manufacturing purposes, the furnaces and plant used, the chemical reactions concerned, and the preparation of the chief commercial alloys.

Text Books.—Robert Austen's "Introduction to Metallurgy," Sexton's "Fuel," Rose's "Gold," and other works depending upon the special needs of the student.

Laboratory Work.—The course in practical metallurgy as given on pp. 78 and 79 illustrates the lectures as far as possible.

EVENING COURSE.

This course deals with General Metallurgy, Iron and Steel, Copper, Lead and Zinc less fully than the day course, but Gold and Silver are treated in detail.

Hours, Tuesday and Friday, 8 to 9.

ASSAYING AND METALLURGICAL LABORATORY WORK—

(Professor A. JARMAN.)

Lectures—Mondays and Thursdays, 10 to 11.

Laboratory hours, 11 to 1 and 2 to 5 (Saturdays excepted).

Students taking the Degree or Associateship in Metallurgy attend the laboratory every day except Saturday, and those

taking the Degree or Associateship in Mining attend the lectures for the first 1½ terms and the laboratory on Monday, Thursday, and Wednesday afternoons for the whole session.

Students must provide themselves with apparatus, a list of which can be obtained in the laboratory. Most apparatus of a permanent or expensive nature is provided by the College. A deposit of 30s is required from each student to cover the cost of crucibles, loss and breakage, the balance being returned at the end of the year. The crucibles used cost about 21s.

The course is outlined below, mining students taking only the underlined portion. Anyone desiring instruction in assaying only must possess a good knowledge of inorganic chemistry.

Sampling of ores, metals, and metallurgical products. Examination of materials used in furnace construction as regards their power of resisting high temperature and the action of corrosive metallic oxides. Analysis of fireclays and other refractory materials. Examination of coal as regards calorific power, sulphur, ash, coke, and volatile matter. Determination of the important constituents of slags.

Fire assay of gold, silver, lead, tin, and mercury ores. Assay of gold, silver, and base bullion. Determination of gold and silver in copper bars, mattes, etc.

Determinations by gravimetric, or volumetric methods when possible, of copper, lead, iron, zinc, nickel, antimony, tin, arsenic, manganese, tungston, silicon, and sulphur, etc., in ores, alloys, and other metallurgical products.

Electrolytic determinations of copper and nickel.

The analysis of complex ores and of materials used as fluxes.

Experimental work on the cyanide process. Assays and analyses relating thereto.

Experimental work on the chlorination process. Assays and analyses relating thereto.

The application of the microscope to metallurgical research.

Pyrometers and their uses.

Preparation of alloys.

Text Books.—Beringer or Lodge's "Assaying" and Low's "Methods of Technical Analysis."

ORE DRESSING—

(Professor A. JARMAN.)

Lectures—Tuesday and Friday, 10 to 11.

This course deals with the subject as required for the Degree and Associateship. Examinations are held at the end of each term.

Principles and Objects of Ore-dressing—Physical properties of metals and minerals bearing on ore-dressing.

Crushing Machinery—Design and calculation of rock-breakers, rolls and stamps; grinding and ball mills; laws of separation by gravity by hydraulic and pneumatic methods; principles of separation by magnetism, electricity, and surface tension.

Concentration by jigs, buddles, blanket-shakes, slime tables, percussion tables, and travelling belt concentrators.

Text Book.—Richards' "Ore Dressing."

ELEMENTARY ELECTRICAL ENGINEERING (Applied Electricity)—

(Lecturer to be appointed.)

Lectures—Wednesday, 10 to 11, and Thursday, 2 to 3.

Practical units, conductors, insulators, measuring current strength and resistance, generation and transmission of current, D*c* and A*c* installations, types of generators and motors, secondary batteries, electric traction, general applications of electricity in engineering.

SYLLABUS OF LECTURES.

MINING—

(Professor A. JARMAN.)

Lectures—Tuesday and Wednesday, 11 to 12, Thursday, 9 to 10. Special evening course, Tuesday and Friday, 7 to 8.

The lectures deal fully with metal and coal mining as required for the Degree and Associateship. Lantern illustrations are used where possible. Students must supplement the lectures by reading articles in standard works and periodicals as directed, and must show evidence of this in colloquium which is held periodically. A written and oral examination is given at the end of each term.

Prospecting. Boring. Surveying of Boreholes.

Hydraulic Mining, Dredging, etc.

Mining of Deep Leads.

Breaking Ground. Hand and machine tools used. Explosives and their use in blasting. Effect of the character of the ground upon the method of attack.

Laying out of mines by shafts, levels, winzes, etc.

Shaft sinking and equipment. Ascent and descent. Various methods of hoisting and winding. Safety arrangements.

Methods of mining by stoping, caving, long wall, pillar and stall, square work, etc., etc.

Support of excavations by timbering and other methods.

Haulage and transport above and below ground.

Drainage. Methods of pumping and water raising. Dams above and below ground.

Ventilation. Gases met with in coal and metal mines; their detection. Natural and artificial ventilation. Regulation and measurement of ventilation. Mining hygiene.

Lighting on surface and underground.

Use of compressed air and electricity in mining.

Housing of plant on surface.

SYLLABUS OF LECTURES.

Relations between Capital and Labour. Mining Laws and Regulations.

Mine management. Examination and valuation.

TEXT BOOKS.—Foster's "Ore and Stone Mining;" Pamely or Hughes' "Coal Mining;" Longridge's "Dredging."

SPECIAL EVENING COURSE.

Tuesday and Friday, 7 to 8.

This course deals with Mining less fully than the day course, and the details given are chosen as far as possible according to the special needs of the students.

LAND AND MINE SURVEYING—

(Lecturer to be appointed.)

Lectures—Tuesday and Friday, 5 to 6.

Field and Office Work, Tuesday, 2 to 5; Friday, 11 to 1 and 2 to 5.

Object and scope of surveying. Surveying instruments; measuring; steel bands and chains; magnetic compass and adjustments; plain and transit theodolites and adjustments; verniers; practical trigonometry; methods of field procedure in traversing and chaining with compass and theodolite. Calculation of rectangular co-ordinates; closing and balancing of survey; calculation of areas; magnetic bearing; true bearing. Connecting underground workings with surface; plotting field surveys; mine surveys. Planimeter; prismatic compass; levelling instruments and their adjustments. Grading roads, railways, and water-races. Calculation of earthwork. Computation of road angles and sides. Triangulation. Determination of true meridian by observations of sun or stars; convergence of meridians; equation of time; equation of equal altitudes; latitude.

SCHOOL OF MINES SCHOLARSHIPS.

The Government School of Mines Scholarships are now tenable either at Auckland or Dunedin. For further particulars see College Calendar.

GOVERNMENT CERTIFICATES FOR MINE MANAGERS, BATTERY SUPERINTENDENTS, DREDGEMASTERS, ETC.

Those who desire instruction with a view to qualify for the above certificates can obtain the necessary instruction either at the day or evening classes.

CLASSES FOR MARINE AND OTHER ENGINEERING STUDENTS.

Candidates for the degree in Mechanical, Civil, or Electrical engineering may (after passing the Preliminary Engineering Examination and Matriculating) take their first year at Auckland in order to pass the Engineering Entrance Examination. The rest of the course requires attendance at Canterbury College.

A day course is provided at Auckland for the benefit of engineering students who do not wish to proceed to a degree, and an evening course is also provided for those who may be unable to attend in the daytime. See time-tables on pp. 88 and 89.

Students wishing to attend these courses must give satisfactory evidence of their knowledge of English, Arithmetic, Algebra, Freehand and Model Drawing.

MARINE ENGINEERING STUDENTS.

Students who attend regularly and make satisfactory progress in either the two years' day course or the three years' evening course are exempted from the Marine Department's

Examination for the third-class certificate, and also from two out of the five years of workshop experience required for that certificate.

When a student takes the day course, there is so much more time and energy available that he is able to do a more extensive course of study, embracing Mathematics, Mechanics, Chemistry, and Physics, as well as the purely engineering subjects to which he must confine his attention if the evenings are all that can be spared.

The fees for the day course are:—

1st Year	£17
2nd Year	£20
Total	£37

and for the evening course:—

1st Year	£5
2nd Year	£5
3rd Year	£4
Total ..	£14

The subjects and hours of lectures are given in the Time-table on pp. 88 and 89.

TIME TABLE OF LECTURES

FOR DEGREE STUDENTS IN MINING AND METALLURGY.

The Times for Laboratory and Field Work are in block type.

Synopsis given on pages	Subjects.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
	FIRST YEAR.						
36—37	Mathematics	...	...	5-6	...	**6-7**	10-11, 11-12
38—40	Physics	...	12, **2-5**	...	**10-1**	12	...
37—38	Chemistry	5	**2-5**	...	**10-1** 5	...	...
71	Freehand Mechanical Drawing ...	...	...	**3-5**	...	...	...
71—72	Descriptive Geometry...	...	...	...	**3-5**	...	...
	SECOND YEAR.						
36- 37	Mathematics and Mechanics	...	...	5-6, 8-9	...	6-7, 7-8	10-11, 11-12
38—40	Physics	...	12, **2-5**	...	**10-1**	12	..
37—38	Chemistry (lecture optional)	3	**2-5**	...	**10-1**	...	..
72	Machine Construction and Drawing ...	...	...	**3-5**	...	...	...
71—72	Descriptive Geometry	...	...	...	**3-5**	..	.
43	Geology (Physical and Structural) ...	**2-5**	5	...	...	5	...

	THIRD YEAR.						
74—75	Geology (Petrography, Stratigraphical and Mining)	...	...	10-1	other lectures	hours and by arrangement	
75—76	Mineralogy	2-5	...	...			
72—73	Applied Mechanics	10	**10-12**	9	...	10	...
73—74	Steam Engine	11-12, 12-1	...	...	...	11	..
72	Machine Construction and Drawing ...	...	...	2, **3-5**	**3-5**	...	...
74	Quantitative Chemical Analysis ...	...	**2-5**	...	**10-1**	...	**10-1**
37	Elements of Differential and Integral Calculus	by arrangement					
	FOURTH YEAR (Metallurgical)						
76—77	Metallurgy	9	...	9	..	9	...
77—79	Assaying and Practical Metallurgy ...	10,**11-1, 2-5**	**11-1, 2-5**	**11-1, 2-5**	10,**11-1, 3-5**	**11-1, 2-5**	...
79	Dressing of Minerals	...	10	...	...	10	..
79	Elementary Electrical Engineering ...	...	...	10	2	...	..
	FOURTH YEAR (Mining)						
80—81	Mining	...	11	11	9	...	...
81	Land and Mine Surveying	..	**2-5**, 5	..	...	**11-1, 2-5**, 5	.
77—78	Assaying	10,**11-1, 2-5**	...	**2-5**	10,**11-1, 3-5**	...	...
79	Dressing of Minerals	...	10	...	...	10	...
79	Elementary Electrical Engineering ...	..	...	10	2	...	...

TIME TABLE OF LECTURES

FOR THE ASSOCIATESHIP IN MINING OR METALLURGY.

The Times for Laboratory and Field Work are in block type.

Synopsis given on pages	Subjects.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
	FIRST YEAR.						
36—37	Mathematics	...	...	5-6	...	6-7	10-11, 11-12
38—40	Physics	...	12, **2-5**	...	**10-1**	12	...
37—38	Chemistry	5	**2-5**	...	**10-1** 5	..	...
71	Freehand Mechanical Drawing ...	...	.	**3-5**	..	...	...
71—72	Descriptive Geometry	...	...	...	**3-5**	.	...
43	Geology (Physical and Structural) ...	**2-5**	5	...	...	5	...
	SECOND YEAR.						
74 75	Geology (Petrography, Stratigraphical and Mining)	...	..	**10-1**	other	hours and	
75—76	Mineralogy	**2-5**	...	...	lectures by	arrangement	
72—73	Applied Mechanics	10	**10-12**	9	...	10	..
73—74	Steam Engine	11-12, 12-1	...	...	...	11	..
72	Machine Construction and Drawing ...	...	...	2, **3-5**	**3-5**	..	...
74	Quantitative Chemical Analysis ...	...	**2-5**	...	...	...	**10-1**
38—40	Physics	...	12	...	**10-1**	12	...

	THIRD YEAR (Metallurgical).						
76—77	Metallurgy	9	...	9	...	9	...
77—79	Assaying and Practical Metallurgy ...	10, **11-1, 2-5**	**11-1, 2-5**	**11-1, 2-5**	10, **1-11, 3-5**	**11-1, 2-5**	...
79	Dressing of Minerals	...	10	..	...	10	..
79	Electrical Engineering (Elementary) ...	...	...	10	2	...	...
	THIRD YEAR (Mining).						
80—81	Mining	...	11	11	9	...	...
81	Land and Mine Surveying	...	**2-5,** 5	...	...	**11-1, 2-5,** 5	...
77—78	Assaying	10, **11-1, 2-5**	...	**2-5**	10, **11-1, 3-5**	...	...
79	Ore Dressing	...	10	...	...	10	...
79	Electrical Engineering (Elementary) ...	...	..	10	2	...	...

EVENING LECTURES.—SCHOOL OF MINES SUBJECTS.

81	Mining	7	...	...	7	...
77	Metallurgy	8	...	.	8	...
81—82	Surveying	...	6-30	...	..	...

Freehand Mechanical Drawing, Descriptive Geometry, Steam Engine, Machine Construction and Drawing, Electrical Engineering. See page 89.

TIME TABLE OF DAY COURSE

FOR MARINE AND OTHER ENGINEERING STUDENTS.

Times for Laboratory Classes are in block type.

Synopsis given on pages	Subjects.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
	FIRST YEAR.						
36–37	Mathematics	...	...	5-6	...	6-7	10-11, 11-12
39—40	Electricity and Magnetism	...	12, **2-5**	...	**10-1**	12	...
37—38	Chemistry	5	**2-5**	..	**10-1** 5	...	...
71	Freehand Mechanical Drawing ..	...	...	**3-5**	...	..	...
71—72	Descriptive Geometry	...	...	...	**3-5**	...	...
72	Machine Construction and Drawing ...	...	**7-9**	2	...	...	...
73—74	Steam and Other Heat Engines (Elem.)	11-12, 12-1	...	...	...	11	...
	SECOND YEAR.						
36—37	Mathematics and Mechanics	...	...	5-6, 8-9	...	6-7, 7-8	10-11, 11-12
38—39	Sound, Light and Heat	...	12	...	**10-1**	12	...
71—72	Descriptive Geometry...	...	...	...	**3-5**	. .	...
72	Machine Construction and Drawing ...	...	**7-9**	**3-5**	...	...	...
73—74	Steam (Advanced)	12	...	11	...	...	...
72—73	Applied Mechanics	10	**10-12**	9	...	10	...
79	Electrical Engineering (Elementary) ...	..	...	10	2	...	...

EVENING COURSE FOR MARINE & OTHER ENGINEERING STUDENTS.

	FIRST YEAR.						
71	Freehand Mechanical Drawing ..	8	...	...	...	8	...
71—72	Descriptive Geometry	...	**7-9**	...	...	...	...
73—74	Steam, Gas, and Oil Engines	7	...	..	...	7	...
	SECOND YEAR.						
72	Machine Construction and Drawing	8	**7-9**	...	...	...	...
	(Workshop Practice and Repair Work)	...	...	..	..	...	...
72—73	Applied Mechanics	...	..	...	7, **8-9.30**	...	...
73-74	Steam, Gas, and Oil Engines (Advanced)	...	...	..	8	...	...
	THIRD YEAR.						
72	Machine Construction & Drawing (Adv.)	...	**7-9**	...	...	**7-9**	...
79	Electrical Engineering (Elementary) ...	two lectures per week			..	...	...

SCHOOL OF MUSIC.

Syllabus of Requirements for Practical and Theoretical Examinations, and for Diplomas conferred by the University College, Auckland.

1907 and 1908.

[This Syllabus will remain in force until December, 1908.]

The objects that the School of Music has in view are the following:—

(1) The Cultivation of the Study, Execution and Composition of Music in all its branches.

(2) To provide a thorough system of Education in all musical matters by lectures and tuition.

(3) To grant certificates of merit and diplomas to those persons who have passed the examinations.

(4) To thoroughly equip those persons who are desirous of becoming qualified teachers and performers of music.

PRACTICAL AND THEORETICAL EXAMINATIONS.

(1) These examinations will be held at the University College in May and November, and are open to all persons without restrictions as to age. The Registrar of the College will supply full particulars, receive names and fees, and give dates of examinations.

(2) Special Examinations can be held in the various grades and Teachers' Examination at any centre, providing the distance is not within a radius of 20 miles from Auckland, if 15 candidates present themselves for the practical, or 7 for the theoretical. The Registrar will supply particulars of regulations and special fees on application.

(3) Certificates will be given to successful candidates on the report of the Examiners.

(4) Candidates must send in their names, together with fees, to the Registrar, at least fourteen days before the date

of examination. They may enter for any grade without restriction, excepting the Associate and Fellowship of Music (v. regulations for Diplomas). Candidates may enter again for Honours in any grade.

(5) A card giving particulars of date and time of examination will be sent to each candidate. This card must be produced at the examination, and will be returned to the candidate with the number of marks obtained in each subject inserted. For a pass certificate 65 marks will be required. For Honours 85.

(6) Candidates who fail to put in an appearance at the examination will forfeit their fees; where a satisfactory reason is given for absence, they may present themselves for the next examination on payment of half fees.

(7) The subjects of examination, and for which certificates are separately granted, are as follows:—Theory of Music; Pianoforte Playing; Solo Singing; Class Singing; Orchestral Instruments; Organ Playing; Violin Playing; and Teachers' Examination.

(8) There are seven grades of examinations:—Primary, Junior, Intermediate, Senior, Associate of Music, Fellowship of Music, and Teachers' Examination.

(9) There will be two Examiners in all Practical Subjects.

THEORY OF MUSIC.†

Maximum, 100; Honours, 85; Pass, 65.

*Requirements for Primary, Junior, Intermediate, and Senior Examinations—

P.J.I.S. Notation.

Time.

Clefs.

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†Text Books: Franklin Taylor and Peterson's Rudiments.
*Primary, P. to P.; Junior, J. to J.; Intermediate, I. to I.; Senior, S. to S.

Scales (major).

Musical terms (relating to tone and speed).

P. Accidentals

Minor and Chromatic Scales.

Key Signatures.

Transposition.

J. Rests.

Staccato and Legato Marks.

Syncopation.

Intervals.

Alto and Tenor Clefs.

Signs in general use.

I. Figured Bass or Common Chords and Inversions.

Harmonising figured Bass, taking in all dominant discords.

Vocal Score.

All C Clefs.

Harmonizing a Melody.

S. Counterpoint in all species in two parts.

Specimen papers can be obtained at the Registrar's Office.

FEES—Primary, 5s.; Junior, 6s.; Intermediate, 7s. 6d. Senior, 10s. 6d.

PRACTICAL EXAMINATIONS.

Syllabus of Requirements.

Pianoforte Playing.

Maximum, 100; Honours, 85; Pass, 65.

Primary. (Fee, 10s. 6d.)

(*a*) Scales of C, G, D, A, F, B flat, and E flat. Two octaves; one hand at a time, or both hands together

(*b*) Studies Bertini, Op. 100 (any two).

(*c*) Sonatina in G ma., Op. 36, No. 3—Clementi.

Junior. (Fee, 12s. 6d.)

(*a*) All Major Scales; Two octaves in similar and contrary motion.

(*b*) Studies Nos. 2 and 6, Etude de la vélocité—Czerny.

(*c*) Sonatina No. 1, Op. 20—Kuhlau.

(*d*) Gigue in B flat—Scarlatti.

Intermediate. (Fee, 15s.)

(*a*) Major and minor scales in similar and contrary motion; harmonic form only in contrary motion.

(*b*) Arpeggios of major and minor chords in the first position.

(*c*) Sight reading.

(*d*) Les Arpèges, Op. 26, No. 12—Thalberg.

(*e*) Romance in E flat, Op. 44, No. 1—Rubinstein.

(*f*) Finale of Sonata 12 in F—Mozart.

Senior. (Fee, £1 1s.)

(*a*) Scales, major and minor, in octaves, 3rds, 6ths, and 10ths, in similar and contrary motion.

(*b*) Arpeggios of major and minor common chords, dominant 7ths and diminished 7ths in all positions.

(*c*) Sight reading.

(*d*) La Fontaine, Op. 61, Meyer; and Fugue in C minor, Book 1—Bach.

(*e*) Allegro alla Burla, Op. 6, No. 4—Grieg.

(*f*) First movement of Sonata 5, Op. 10, No. 1—Beethoven.

Students of the College wishing to enter for any of the above practical examinations will be admitted as candidates on payment of half-fees.

Solo Singing.

Primary. (Fee, 10s. 6d.)

(*a*) Major scales to "Ah."
(*b*) Any one of the Studies of Concone.
(*c*) A simple song selected by the candidate.
(*d*) Ear tests

Junior. (Fee, 12s. 6d.)

(*a*) Major and minor scales to "Ah."
(*b*) Intervals of 3rds, 4ths (perf.), 5ths (perf.), and octave.
(*c*) One study from Concone.
(*d*) A simple song selected by the candidate.
(*e*) Ear tests.
(*f*) An easy piece from sight.

Intermediate. (Fee, 15s.)

(*a*) Major and minor scales (harmonic minor).
(*b*) Two studies from Concone.
(*c*) All intervals within the octave (except diminished and augmented).
(*d*) Sight reading.
(*e*) Ear tests.
(*f*) One song selected from an Oratorio by the candidate.

Senior. (Fee, £1 1s.)

(*a*) Major and minor scales (harmonic and melodic minor).
(*b*) Two studies from Concone's 15 Vocalises.
(*c*) Diatonic and chromatic intervals.
(*d*) Sight reading.

(*e*) One song, selected by the candidate from an Oratorio, and one song from the list below—

Soprano—"The lass with the delicate air" (G)—Arne.

Mezzo-Soprano—"Parlate d'Amor"—Gounod.

Alto—"In gentle murmurs"—Handel.

Tenor—"Love in her eyes"—Handel's Acis.

Baritone—"Thou art passing hence"—Sullivan.

Bass—Prayer (Lohengrin)—Wagner.

[Candidates must bring their own accompanists.]

N.B.—Students of the College wishing to enter for any of the above examinations in singing, will be admitted as candidates on payment of half-fees.

Class Singing.

Fees: A class numbering 10 or less, £1 1s.; a class numbering 11 or more, £1 11s. 6d.

[There are three standards, A, B, C, of which A is the highest. A requires 85 marks. B, 75. C, 65.]

Requirements—

(*a*) Major and minor scales.

(*b*) Diatonic intervals.

(*c*) A song of the conductor's choice.

(*d*) Any two of Mendelssohn's two-part songs.

Orchestral Instruments.

Fees, similar to the other practical sections.

Candidates must submit for the approval of the Director of Examinations one study, and two selected pieces by some classical composer.

Reading from sight will be expected of all grades except the Primary.

Students of the College will be accepted as candidates at half-fees.

Organ Playing.

Junior. (Fee, 12s. 6d.)

(*a*) Major and harmonic minor scales to the extent of two octaves (either hand may be required or both hands together).
(*b*) Major scales to the extent of one octave on the pedals.
(*c*) Andante in F—Hesse.
(*d*) Moderato in A mi., No 38, Rink's Org. School; and Prelude and Fugue in G ma.—Bach.
(*e*) Sight Reading.

Intermediate. (Fee, 15s.)

(*a*) All major and minor harmonic scales in similar and contrary motion.
(*b*) Major and minor harmonic scales (one octave on the pedals.)
(*c*) Andante Maestoso in A ma., No. 83, Best's Art of Organ Playing; and Andante G ma., No. 7, Pearce's Organ Studies, Book II.
(*d*) Andante A ma., No. 1—Smart.
(*e*) Sight reading.

Senior. (Fee, £1 1s.)

(*a*) All major and minor scales in 3rds, 6ths, and 8ths, and chromatic scales throughout the keyboard.
(*b*) Major, minor, and chromatic scales throughout the pedalboard.
(*c*) Major scales, pedal and left-hand in contrary motion to the extent of two octaves, when possible.
(*d*) Study on Chorale "Allein Gott," No. 13, Pearce's Org. Studies—Bach.
(*e*) Allegro A mi., No. 3, Op. 22—Gade.
(*f*) Sight reading.

N.B.—Half-fees to students of the College.

Violin Playing.

Primary. (Fee, 10s. 6d.)

(*a*) Major scales of C, G, D, and F, in the first position.

(*b*) Studies 31 and 40, Hermann's Violin School.

(*c*) Petite Valse, Op. 30 (Schott)—Danbé.

Junior. (Fee, 12s. 6d.)

(*a*) Major scales of A, E, B, and B flat, in the first position.

(*b*) Sight reading.

(*c*) Spohr's Grand Violin School, C ma. (17), and A ma. (26).

(*d*) Romanza in F—Simonetti.

Intermediate. (Fee, 15s.)

(*a*) All major and minor scales not beyond the 5th position, ascending and descending (two octaves).

(*b*) Major and minor common chord arpeggios (not beyond the 5th position).

(*c*) Sight reading.

(*d*) Canzonetta in G—Paradies.

(*e*) Benedictus (from 6 violin pieces)—Mackenzie.

(*f*) Book 1, Nos. 9 and 10—Kayser.

Senior. (Fee, £1 1s.)

(*a*) The major and minor scales (three octaves) of E, A flat, A, B flat, B; all other scales two octaves only.

(*b*) Major and minor common chords and inversions, and the chord of dominant 7th (root position).

(*c*) Sight reading.

(*d*) Rode's 24 Caprices, 2 and 3.

(*e*) "Mignonette," Melody in A—Papini.

(*f*) Romance in G, No. 1—Macfarren.

[Candidates must bring their own accompanists.]

DIPLOMAS.

Associate of the School of Music.

1. Candidates for this Certificate must attend a course of Lectures in Acoustics, and pass an examination in the same.

2. They must also give two years' attendance on lectures in the School of Music, embracing the Theory of Music, Harmony, Composition, Form, Counterpoint, Fugue, History of Music, and Instrumentation; and must also display the required proficiency in the execution of either vocal or instrumental music of standard examples of classical and modern composition; or, if the Associate of Music is taken in the Theory of Music, must write an exercise and pass the Examination as laid down in the Syllabus.

3. Notwithstanding the fulfilment of all other requirements, no person shall be entitled to receive the diploma of "Associate" until he or she shall have attained the full age of 17 years.

Practical Examination for Associate of Music. (Fee, £1 11s. 6d.)

PIANOFORTE PLAYING.

Required:—

(*a*) No. 1 of 3 Capriccios, Op. 33—Mendelssohn.

(*b*) Sonata No. 4, Op. 7—Beethoven.

(*c*) Sight reading.

(*d*) All major and minor scales and arpeggios in similar and contrary motion.

(*e*) A critical knowledge of the pieces performed.

ORGAN PLAYING.

(Fee, £1 11s. 6d.)

Required:—

(*a*) Bach's "S. Anne" Fugue.

(*b*) Sonata I.—Mendelssohn.

(*c*) Sight reading.

(*d*) Reading from Figured Bass.

(*e*) A critical knowledge of pieces performed.

Solo Singing.

(Fee, £1 11s. 6d.)

Soprano—(*a*) "Non mi dir," Don Giovanni—Mozart.

(*b*) "So shall the lute and harp awake"—Handel's Judas.

(*c*) Sight reading.

(*d*) Any major or minor scale.

(*e*) A critical knowledge of the pieces performed.

Mezzo-Soprano—(*a*) "A summer night"—Goring Thomas.

(*b*) "Maydew"—S. Bennett.

(*c*), (*d*), (*e*) as Soprano.

Contralto—(*a*) "Love not the world"—Sullivan.

(*b*) "Entreat me not to leave thee"—Gounod.

(*c*), (*d*), (*e*) as Soprano.

Tenor—(*a*) "Love sounds the alarm"—Handel

(*b*) "Where'er ye walk"—Handel.

(*c*), (*d*), (*e*) as Soprano.

Bass—(*a*) "The Wanderer"—Schubert.

(*b*) "To Anthea"—Hatton.

(*c*), (*d*), (*e*) as Soprano.

Orchestral Instruments.

(Fee, £1 11s. 6d.)

Two classical pieces by different composers must be submitted to the Examiners; the other tests will be the same as under Pianoforte Playing.

Violin Playing.

(Fee, £1 11s. 6d.)

Required:—

(*a*) Studies 29 and 34—Kreutzer.

(*b*) Sonata No. 5 in F—Beethoven.

(*c*), (*d*), (*e*) as Pianoforte.

Theoretical Examination for Associate.

Candidates must attend two years at the University College lectures in School of Music, and have passed the Annual Examinations.

An Examination Paper will be set in the following subjects:—

(*a*) Harmony in 4 parts of an advanced nature.

(*b*) Counterpoint in 4 parts.

(*c*) Double Counterpoint in the 8th and 15th.

(*d*) Canon in two and three parts.

(*e*) Fugue in two and three parts.

(*f*) Instrumentation.

(*g*) Form.

(*h*) History of Music.

An Exercise for 4 voices and string accompaniment, in modern anthem form, must then be submitted to the Professor of Music, with a declaration stating that the composition is the unaided work of the candidate.

N.B.—All exercises must be sent to the Registrar to be placed in the College Library, if accepted by the Examiners.

Fellow of the School of Music.

Candidates must have passed the Examination for Associate of Music, and in addition must have attended a year's lectures in music at the University College after passing the Associate of Music.

Theoretical Examination for Fellowship. (Fee, £2 2s.)

Requirements:—

(*a*) **Harmony in 5 parts of an advanced nature.**
(*b*) **Strict Counterpoint in 5 parts..**
(*c*) **Double Counterpoint in the 8th, 10th, 12th, and 15th.**
(*d*) **Canon in 2, 3, and 4 parts.**
(*e*) **Fugue in 4 parts.**
(*f*) **Instrumentation.**
(*g*) **Form.**
(*h*) **History of Music.**

An Exercise for 4 or 5 voices, with string accompaniment, containing contrapuntal writing, in at least two movements, must be sent in to the Professor of Music, with a declaration stating the composition is the unaided work of the candidate.

N.B.—All Exercises must be sent to the Registrar to be placed in the College Library, if accepted by the Examiners.

Fellowship.—(Practical.)

(Fee, £2 2s.)

PIANOFORTE PLAYING.

Requirements:—

(*a*) **Fantasia F ♯ mi.—Mendelssohn.**
(*b*) **Italian Concerto—Bach.**
(*c*) **No. 26, Sonata, Op. 81A—Beethoven.**
(*d*) **Sight reading.**
(*e*) **All major and minor scales in 3rds, 6ths, 10ths, and double 3rds and 6ths; chromatic scales in all conceivable ways; all arpeggios in similar and contrary motion.**
(*f*) **A critical knowledge of the pieces performed.**
(*g*) **Accompaniment to a song from sight.**

N.B.—An artistic rendering of the pieces performed is essential.

Fellowship.—(Practical.)
(Fee, £2 2s.)

Organ Playing.

Requirements:—

(*a*) Playing from figured bass at sight

(*b*) Extemporisation.

(*c*) Questions on stops.

(*d*) Sonata in F mi.—Rheinberger.

(*e*) Fugue on name "Bach"—Schumann.

(*f*) A critical knowledge of the pieces performed.

Fellowship.—(Practical.)
(Fee, £2 2s.)

Solo Singing.

(*a*) Sight singing of an advanced nature.

(*b*) Scales, diatonic and chromatic.

(*c*) Two studies of an advanced nature, chosen by the candidate.

(*d*) One solo selected by the candidate.

(*e*) One solo selected from list above.

Soprano—"Elizabeth's Prayer"—Wagner.

Alto—Song cycle, "Sea Pictures" (any two)—Elgar.

Tenor—"Comfort Ye" and "Ev'ry Valley"—Handel.

Bass—"Vulcan's Song"—Gounod.

(Candidates must bring their own accompanists.)

Violin Playing.
(Fee, £2 2s.)

Required:—

(*a*) Hungarian Dances, 4 and 5—Brahms-Joachim.

(*b*) Air Varié (D mi.)—Vieuxtemps.

(*c*), (*d*), (*e*), as under Pianoforte Playing.

*TEACHERS' CERTIFICATE.

(Fee, £3 3s.)

A Certificate will be granted to those who require to show their proficiency in Performance (Piano, Organ, Singing, Violin, or Orchestral Instruments), Theory, and Capabilities of Teaching, after passing the following test :—
Requirements—

(*a*) To Play or Sing Compositions required for Associate of Music (*vide* above, *a* and *b*).

(*b*) Senior Grade Theory.

(*c*) †Technique of Teaching *(viva voce)*.

In issuing the Syllabus of Practical and Theoretical Examinations, it is hoped that a want, often expressed, has been supplied.

The following points must be noted with reference to the conduct of the Examinations to be held at the University College :—

(1) TWO EXAMINERS will be present at all Practical Examinations.

(2) Ample time will be given to each candidate for performance.

(3) The WHOLE of the work prepared will be expected to be performed, but the Examiners reserve the right to stop the Candidate when their judgment is formed.

(4) All candidates, in whatsoever grade they may select, will have the same works to prepare.

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*This Examination is open to all, whether members of the College or not, irrespective of age.

† (*c*) This will have special reference to backward pupils, and the difficulties generally met with in teaching.

Table of Fees.

	£	s.	d.
Theoretical Examinations :—			
Primary	0	5	0
Junior	0	6	0
Intermediate	0	7	6
Senior	0	10	6
Practical Examinations :—			
Primary	0	10	6
Junior	0	12	6
Intermediate	0	15	0
Senior	1	1	0
Associate of School of Music...	1	11	6
Fellow ,, ,, ...	2	2	0
Teacher's Certificate—			
Inclusive Fee	3	3	0

SYLLABUS OF LECTURES.

MUSIC (Dr. W. E. Thomas).

* Division I. (1st year).

Hour of Lecture—Monday, 5—6 p.m.

Elements of Music: Notes, rests, clefs, intervals, scales, time abbreviations and other signs.

Harmony[1]*:* Common chords, chords of the dominant 7th, 9th, 11th, 13th, suspensions, augmented 6th, cadences, passing notes, sequences, transposition, modulation, and harmonising melodies.

Counterpoint[2]*:* Simple; all species in two parts.

History of Music.[3]

Division II. (2nd year).

Hour of Lecture—Thursday, 6—7 p.m.

Harmony[1]*:* Up to four parts.

Counterpoint[2]: Simple, up to three parts.

Double Counterpoint: In the octave, 10th, 12th, and 15th.

Canon and Fugue: In two parts.

Instrumentation: Compass, capabilities, and quality of the various instruments employed in the orchestra.

Form: as employed in classical compositions.

History of Music.[3]

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* Division I. will cover the knowledge necessary for Trinity College, London, Senior; the Associated Board of R.A.M. and R.C.M., Senior; Matriculation and all the College Grade Examinations.

(1) Stainer's "Harmony" is recommended for Div. I., and Prout's for Divs. II. and III.

(2) Bridge's "Counterpoint" for Div. I., Prout's for Divs. II. and III.

(3) Davey's "History of Music" is recommended for all Divisions

SYLLABUS OF LECTURES.

DIVISION III. (3RD YEAR).

Hour of Lecture—Friday, 6—7 p.m.

For Advanced Students: The lectures will comprise the whole of the Theory and History of Music, up to the standard of the Bachelor of Music Degree.

COMPOSITION CLASS.

Lectures will be given in Musical Composition, principally addressed to those who have passed the Advanced Division Examination, providing that at least six Students give in their names to the Registrar.

The above-mentioned lectures will be delivered at the University College.

MEDALS.

Silver Medals will be given by the School of Music to those who obtain the highest marks in the first class at the Annual Examination in each of the Three Divisions of Theory, providing conduct, attendance, and progress have been satisfactory.

Students who have won a medal shall not be allowed to enter again in the same division.

PRIZES.

Book Prizes will be given to those who obtain the highest marks in the Senior Grade Practical Examination, the Associate Practical Examination, and the Fellowship Practical Examination.

SCHOLARSHIP.

A Scholarship entitling the winner to obtain three years' free tuition at the College School of Music, and £2 2s towards the expenses of the Fellowship, Practical, or Theoretical Examination, is instituted by the University College Council. The Examination for the Scholarship will be a Theoretical one up to the standard of the Senior Grade Examination. The next Examination will take place early in March, 1908. Intending Candidates must give in their names on or before March 1st, 1908, to the Registrar.

GRADUATES.

The following are the Graduates of the University of New Zealand, whose names are on the College Register:—

DOCTOR OF SCIENCE.

MACLAURIN, James Scott (B.Sc. 1892), 1897 (*1*)

DOCTOR OF LAWS.

BAMFORD, Harry Dean (B.A. 1899, LL.B. 1901), 1903

MASTERS OF LAWS.

MOODY, Robert Norman (LL.B. 1905), 1906 (*2*)

PICKMERE, Leonard Travers (LL.B. 1906), 1907

MASTERS OF SCIENCE.

DONOVAN, Willie (B.Sc. 1903), 1907

FRASER, Colin (B.Sc. 1904, Honours 1905), 1906

HOLLOWAY, John Ernest (B.Sc. 1904, Honours 1905), 1906

STEPHENSON, George Benjamin (B.Sc. 1902, Honours), 1907

WORLEY, Frederick Palliser (B.A. 1904, M.A. 1905, B.Sc. 1906), 1906

MASTERS OF ARTS.

ALLEN, Richard William (B.A. 1898), Honours 1899

ARDERN, Philip Sydney (B.A. 1902), Honours 1903

BROWN, Mona Martha (B.A. 1905), Honours 1906

(*1*) Government Analyst.
(*2*) Law Lecturer at Auckland University College.

GRADUATES.

BUCHANAN, Edith Mary [*née* Adams] (B.A. 1889), Honours 1890

CARTER, Frederick John (B.A. 1890), Honours 1891

CAUGHLEY, John (B.A. 1903), 1905

CLARKE, Edward de Courcy (B.A. 1901), (Certificate of Proficiency M.A. Standard, 1905), Honours 1902 (*3*)

COUSINS, Herbert Granville (B.A. 1904), Honours 1905

COWX, Howard Percival (B.A. 1890), 1891

CRUMP, Arthur Rainsforth (B.A. 1902), Honours 1903

CRUMP, Mabel Lilian (B.A. 1896), Honours 1897

CURRIE, Annie Hamilton (B.A. 1892), Honours 1893

DAVIS, John King (B.A. 1881), Honours 1882 (*4*)

DRUMMOND, James (B.A. 1894), Honours 1904

DUNLOP, Fergus Gale (B.A. 1905), Honours 1906

FIELD, Edward Thurlow (B.A. 1892, LL.B. 1895), Honours 1893

FOX, Charles Elliot (B.A. 1881), 1882

FRENCH, James Morison (B.A. 1887), Honours 1888

GIFFORD, Arthur (B.A. 1885), Honours 1886

GIFFORD, Sylvia Esther (B.A. 1890), Honours 1891

GILLIES, Sinclair (B.A. 1888), Honours 1889

GRANT, Catherine Donaldson (B.A. 1892), Honours 1893 (*5*)

GREEN, Thomas Hillier (B.A. 1889), Honours 1890

GRIFFIN, Elsie Mary (B.A. 1905), Honours 1906 (*8*)

HALLIWELL, Luther Vincent (B.A. 1902), Honours 1903

HAMILTON, Robert James (B.A. 1895), Honours 1896

(*3*) Government Geological Surveyor.
(*4*) Master at Auckland Grammar School.
(*5*) Headmistress New Plymouth High School.
(*8*) Mistress at Auckland Grammar School.

HARRIS, Thomas Abraham (B.A. 1900), Honours 1901

HOVELL, Rollo Richard St. John (B.A. 1905), Honours 1906

HULL, Cecil Lina Francis (B.A. 1903), 1905

HUNTER, Matthew Albert (B.Sc. 1900), (Honours 1901) 1902

IRONSIDE, Anne Forsyth (B.A. 1906), Honours 1907

JACOBSEN, Frances Violet Josephine (B.A. 1904), Honours 1905 (*8*)

JACKSON, David Hamilton (B.A. 1891, B.Sc. 1893), Honours 1892

KING, Eustace (B.A. 1901), 1902

LA TROBE, William Sanderson (B.A. 1893), Honours 1894

LEVIEN, Felix Hector (B.A. 1905), 1907

LIPPIATT, George (B.A. 1890), Honours 1891

LONG, Frank Clendon (B.A. 1902), Honours 1905

LUSK, Harold Butler (B.A. 1901), Honours 1902

MACLAURIN, Richard Cockburn (B.A. 1891), Honours 1901 (*6*)

MAJOR, Charles Thomas (B.A. 1892, B.Sc. 1894), Honours 1893 (*7*)

MAJOR, Henry Dewsbury Alves (B.A. 1895), Honours 1896

MELLSOP, Clementine Emily Margaret [*née* Harrison] (B.A. 1884), Honours 1885

MORRISON, Annie Christina (B.A. 1892), Honours 1893 (*8*)

MULGAN, Edward Ker (B.A. 1895), Honours 1896 (*9*)

(*6*) Professor of Mathematics, University of Columbia.
(*7*) Headmaster King's College, Remuera.
(*8*) Mistress at Auckland Grammar School.
(*9*) Inspector of Schools, Board of Education, Christchurch.

GRADUATES.

McCULLOUGH, Robert Alexander (B.A. 1895), Honours 1900 (*10*)

McINTOSH, Ethel May (B.A. 1902), Honours 1903 (*11*)

McINTYRE, Hugh (B.A. 1901), Honours 1902

McLEAN, Nina Irene (B.A. 1904), Honours 1905

NEVE, Frederick (B.A. 1892), Honours 1902

NEWCOMBE, Frederick (B.A. 1894), 1895

NOTT, James Thornton (B.A. 1890), Honours 1891

PARKINSON, Henry Ainslie (B.A. 1900), Honours 1901

PATTERSON, Florence Isabella (B.A. 1901) 1903

PICKEN, Winifred (B.A. 1894), Honours 1895 (*8*)

PICKMERE, Marguerita Blomfield (B.A. 1901), Honours 1902

POGSON, Frank Lubecki (B.A. 1900), Honours 1901

RÖCKEL, Robert Hermann (B.A. 1898), 1901

RYBURN, Robert Middleton (B.A. 1888), 1889

SHREWSBURY, Elsie (B.A. 1892), Honours 1893

SHREWSBURY, Hugh (B.A. 1889, LL.B. 1894), Honours 1890

SHROFF, Alfred Homy (B.A. 1897), Honours 1899

SINCLAIR, Mary Muir (B.A. 1889), Honours 1890

SINCLAIRE, Frederick (B.A. 1902), Honours 1903

STRONG, Edward Herbert (B.A. 1899), Honours 1900

STUCKEY, Frederick (B.A. 1901), Honours 1902

TISDALL, Charles Archibald (B.A. 1894), Honours 1895

TISDALL, William St. Clair Towers (B.A. 1878), Honours 1879

TURNER, Joseph Hurst (B.A. 1889), Honours 1890 (*4*)

(*4*) Master at Auckland Grammar School.
(*8*) Mistress at Auckland Grammar School.
(*10*) Master at the Dunedin Boys' High School.
(*11*) Mistress at Wanganui College.

GRADUATES.

WALKER, Maxwell (B.A. 1901), Honours 1902 (*12*)
WATTS, Percy Harold (B.A. 1898), Honours 1899
WILSON, Joseph Harris (B.A. 1883), 1886
WILSON, Ebenezer (B.A. 1902), Honours 1903

BACHELORS OF ARTS.

ALLAN, Harry Howard Barton, 1905
AUBIN, Emile Dupont, 1891
BAKER, Harold Napier, 1900
BAKER, Mary Lilian (*née* Hill), 1889
BALL, Eleanor Dorothy (*née* Dudley), 1894
BOSCAWEN, Teresa Catherine Burgoyne (*née* Gerkens), 1897
BOYLE, John, Honours 1893
BROAD, Charles Harrington, 1893
BROWN, George, 1902
BURNS, Hector Kenneth, 1906
BUTTON, Lela Cowell, 1903
CARTER, Henry James, 1894
CHITTY, Ernest, 1906
CLAYTON, Charles Ziegler, (LL.B. 1886), 1883
COLEMAN, Margaret Annabella, 1897
CRONIN, Bartholomew, 1884
DINNEEN, Alice Maud Dalton, 1901
DINNEEN, James Dalton, 1905
DREW, Gertrude Annie, 1902
DRUMMOND, Peter, 1896 (*4*)
ECCLESFIELD, Isabel, 1891

(*4*) Master at Auckland Grammar School.
(*12*) Lecturer on Modern Languages, Auckland University College.

ELLIS, Percy Sylvester Gilbert, 1893
FIELD, Charles William, 1899
FOX, Charles Elliott, 1900
GALWEY, John de Burgh, 1893
GATENBY, William Joshua, 1897
GATLAND, Arthur Raglan, 1905
GRANT, Jane Donaldson, 1893
GRIFFIN, Cyril James Anthony (B.Sc. 1903), 1905 (*4*)
HAMILTON, Annie Eliza (*née* McPherson), 1899
HETHERINGTON, Jessie Isabel, 1902
HILL (*née* Durrieu), Louisa, 1889
HINE, Hubert, 1898
HORTON, Henry, 1892
HUGHES, Hubert Bomford, 1907
JAMES, Herbert Louis, 1886
KERR, Walter, 1886
KNAPP, Jessie, 1891
LAWS, Charles Henry, 1898
LINDSAY, Peter Alexander (M.B. and C.M., Edinburgh), 1884
LIVESEY, Cecil Edleston, 1897
LIVESEY, Florence Ellen, 1899
LLOYD, Claire Scott (*née* Smith), 1898
MACKIE, Lionel John Mytton, 1906
MAHON, Harold James del Monte, 1895 (*4*)
METCALFE, Marion Hamilton, 1905
MILLER, Charles Frederick Chipman, 1906
MOORE, Joseph Harold (LL.B. 1897), 1893
MURRAY, Annie, 1893

(*4*) Master at Auckland Grammar School.

GRADUATES.

MURRAY, Donald, 1890

McDOWELL, William Chisholm Wilson (M.D., Edin.), 1885 (*13*)

McFARLAND, Edgar James, 1882

McSPORRAN, Robert, 1902

NORTHCROFT, Agnes Mary, 1905

O'DONOGHUE, Denis, 1900

PEACOCKE, Muriel M. C. A., 1907

RANDERSON, Arthur Cyril, 1905

RATTRAY, Robert Henry (LL.B. 1880), 1873

ROBERTSON, May Bloxsome, 1906

SEVERNE, Edward Herbert, 1902

SMITH, Harry, 1897

STEVEN, Martha, 1903

THOMAS, Thomas Theodore, 1903

TUCK, William Robert, 1907

WALKER, William Robert Cooper, 1898 (*14*)

WARREN, Thomas Francis, 1906

WATSON, Cecil Alexander Burns, 1903

WELLS, Tom Umfrey, Honours 1894 (*15*)

WHYTE, Bessie Blair, 1903

WILLIAMS, Owen Wallis, 1905

WILSON, Helen (*née* Simpson), 1902

WITHER, George Bigg, 1895

YOUNG, Frederick William, 1897

(*13*) Member of Auckland University College Council and of the Senate of the University of New Zealand.

(*14*) Headmaster Cambridge High School.

(*15*) Headmaster of Richmond Road School, Member of Auckland University College Council.

GRADUATES.

BACHELORS OF SCIENCE.

ADAMS, James Henry, 1906
ALLEN, Douglas Vernon, 1905
BAKER, William Henry, 1899
CARADUS, Edward, 1906
CHOYCE, Charles Coley, 1897
DROMGOOL, James Charles, 1899
GRIFFIN, Cyril James Anthony (B.A. 1905), 1903
HAMILTON, Robert James (M.A., 1896), 1904
HANSEN, David Ernest, 1907
HUNTER, Matthew Albert (1900), Honours 1901, M.A. 1902
JACKSON, David Hamilton (M.A. 1892), 1893
KING, Eustace, 1905
MACLAREN, James Malcolm, 1899 (*16*)
MAJOR, Charles Thomas (M.A. 1893), 1894
STEPHENSON, George Benjamin, 1902
ZIMAN, Solomon Netheim, 1907

BACHELORS OF LAWS.

BAUME, Frederick Ehrenfried, 1891 (*17*)
BROWN, Alan St. Clair, 1902
BUCKLAND, Charles Channing, 1896
CLAYTON, Charles Ziegler (B.A. 1883), 1886
COATES, Robert James, 1903
DUNLOP, Fergus Gale (M.A. 1906), 1908
ENDEAN, William Phillips, 1906
FIELD, Edward Thurlow (M.A. 1893), 1895

(*16*) Mining Specialist, Geological Survey of India.
(*17*) M.P.

GRADUATES.

HOWARTH, Athol Fielding, 1907
JACKSON, Thornton, 1900
JOHNSTONE, Joseph Boyce, 1904
KENT, George Sedgwick, 1902
LUSK, Harold Butler (M.A. 1902), 1907
MACDIARMID, Campbell Larnach, 1900
MCINTYRE, Hugh (B.A. 1901, M.A. 1902), 1903
MCLEAN, Glenallan, 1905
MOORE, Joseph Harold (B.A. 1893), 1897
MOORE, William Ernest, 1906
PEACOCK, John Campbell, 1902
RATTRAY, Robert Henry (B.A. 1878), 1880
SHREWSBURY, Hugh (M.A. 1890), 1894
STANTON, Joseph, 1907
WOODWARD, William Harold, 1907
ZIMAN, Ralph Lionel, 1907

BACHELORS OF MUSIC.

WEBB, Edith Marion, 1907
WILLIAMS, Florence Bertha, 1906

Admitted Ad Eundem Gradum:

BAKEWELL, Robert Hall, M.D. (St. Andrew's).
BEATTY, William, the Reverend, M.A. (Dublin).
BOURNE, Charles Frederick, M.A. (Oxford).
COWIE, Edmund Mortlock, the Reverend, M.A. (Cambridge).
NELSON, Charles Moseley, the Reverend, M.A. (Cambridge) (*18*)

(*18*) Registrar Auckland University College.

GRADUATES.

O'Rorke, Honble. Sir George Maurice, M.A., Hon. LL.D. (Dublin).

Runciman, David Williamson, the Reverend, M.A. (Glasgow).

Sloman, John Flashman, B.A. (Sydney).

Tibbs, James William, M.A. (Oxford).

UNIVERSITY SENIOR SCHOLARSHIPS.

1883—GIFFORD, A. (Latin and Greek).
1888—GREEN, T. H., Experimental Science (Chemistry, Heat, Electricity).
1889—CARTER, F. J., Latin and English
COWX, H. P., Mental Science.
GIFFORD, Sylvia E., Political Science.
NOTT, J. T., Natural Science (Zoology).
1890—JACKSON, D. H., Chemistry.
MACLAURIN, R. C., Mathematics.
1891—MAJOR, C. T., Mathematics.
SHREWSBURY, Elsie, Political Science.
1892—BOYLE, J., Chemistry.
1894—MAJOR, H. D. A., Geology.
1897—WATTS, P. H., Mathematics.
ALLEN, R. W., Chemistry.
1898—MACLAREN, J. M., Natural Science (Geology).
BAKER, W. H., Chemistry.
1899—FOX, C. E., Natural Science (Geology).
HUNTER, M. A., Chemistry.
POGSON, F. L., Latin (equal with another)
1900—CLARK, E. de C., Natural Science (Geology).
1901—HALLIWELL, L. V., Mathematics.*
LONG, F. C., Political Science.
SINCLAIRE, F., Latin.
STEPHENSON, G. B., Natural Science (Botany)
1902—DONOVAN, W., Chemistry.
GRIFFIN, C. J. A., Mathematics.
1903—FRASER, C., Natural Science (Geology).

*Also gained Scholarship in Chemistry, but debarred from holding two Scholarships.

SCHOLARSHIPS.

1905—CARADUS, E., Chemistry.

IRONSIDE, Anne F., Natural Science (Botany) (equal with another).

1906—ZIMAN, S. N., Applied Mathematics (Pure Mathematics)

JOHN TINLINE SCHOLARSHIP [ENGLISH].

1901—ARDERN, P. S.

EXHIBITION 1851 SCIENCE SCHOLARSHIP.

1892—JACKSON, D. H., *Chemistry.

1894—MACLAURIN, J. S., †Chemistry.

1901—MACLAREN, J. M., Geology

1902—HUNTER, M. A., Chemistry

SINCLAIR SCHOLARSHIP.

1885—WILSON, F. E.

1888—No Appointment.

1895—No Appointment.

1896—DINNEEN, Alice M. D.

1899—STEVEN, Martha M.

1902—IRONSIDE, Anne F.

1905—WILDMAN, Susannah

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*Renewed by Commissioners in 1894 for a third year.

†Relinquished the Scholarship.

SCHOLARSHIPS.

GILLIES SCHOLARSHIP

1885—GREEN, T. H.
1888—GRANT, Jane D.
1895—DROMGOOL, J. C.
1898—HUNTER, M. A.
1901—No Appointment.
1903—HANSEN, D. E.
1906—GRAY, W. R.
HANSEN, A. J., *proxime accessit.*

SIR GEORGE GREY SCHOLARSHIP.

1900—CRUMP, A. R.
1902—GRIFFIN, C. J. A. (*1*)
1902—JACOBSEN, Frances V. J.
1903—No Appointment.
1904—CARADUS, E.
1905—ZIMAN, S. N.
1906—ALDRIDGE, W. G.
1907—ALDRIDGE, W. G.

EARLY ENGLISH TEXT SOCIETY PRIZE, 1906.

1906—WELHAM, Alma A.

(*1*) Resigned because held another scholarship, and Frances V. J. Jacobsen appointed.

ASSOCIATES OF THE SCHOOL OF MUSIC.

1897.

ADAMS, J. M.	MOORE-JONES, A. F.
ANDERSON, E. M.	KENT, E.
BAKER, I.	LOUCH, C.
DENNISON, A.	MYERS, E.
ENGLAND, W. J.	STUART, A. H.

1898.

BRABANT, E.	PEAK, M.
BUTLER, E.	THOMSOM, L.
FARRELL, M.	VERRALL, A. H.
LEYS, W.	WEBB, E.
MCDOUGALL, N.	

1899.

ATKINS, M.	BOULTON, E.
BLAMPIED, MRS.	LEWIS, S.

1900—None.

1901.

ALLEN, M. C.	LOWTHER, V. E.

1902.

BINSTED, R.	MASON, W.
GRAINGER, B.	PHILLIPS, S. K.

SCHOOL OF MUSIC.

1903.

BLADES, M.	HANNA, P.
GIBBONS, J.	HUNT, H. G.
HAMPSON, M.	SWALES, L.

1904.

BELLINGHAM, W. J.	HUGHES, V.
BROWN, E.	PATRICK, M.
HEATH, MRS.	

1905.

LOVATT, C.	RHODES, E.

1906.

CAULIER, E.	OSBORNE, B.
COLLIS, K.	PROBERT, E.
DENZ, F.	WALKER, F.

1907.

BARTHOW, ADELA	MORTON, F. H.
BOULTON, GLADYS L.	ROUSSEL-COSSEY, MAY
CURTIS, MILDRED	

FELLOWSHIP OF THE SCHOOL OF MUSIC.

1904.

BINSTED, R.	GRAINGER, B.
LOUCH, C.	PHILLIPS, S. K.

1905.

Bellingham, W. J.
Brown, E.
Gibbons, J.
Hampson, M.
Hughes, V.
Kendon, M. L.

1906.

Rhodes, E. M.

1907.

Probert, Elsie

TEACHER'S CERTIFICATE OF THE SCHOOL OF MUSIC.

1905—Moses, R.

1906—None.

1907.

Curtis, Mildred
Stanley, Ada
Sullivan, Mary Amelia

UNDERGRADUATES.

NOTE.—This list, in order to avoid unduly loading the pages of the Calendar, does not contain the names of those Undergraduates who have not, although keeping their names on the Books of the University, presented themselves during the last two years at College Examinations.

REFERENCES.—*J.S.* means Junior Scholar; *Sin. S.* means Sinclair Scholar; *G.S.* means Gillies Scholar.

Three Years' Terms have been kept by—

Aldridge, Wilfred G., *J.S.*, *Sir G. Grey S.*
Collins, Edith C.
Haselden, Ella D.
Hay, Mona C.
Jordan, C. B.
Short, Arthur W.
Simmonds, J. C.
Welham, Alma A., *J.S.*

Two Years' Terms have been kept by—

Bain, May C.
Ballantyne, Kenneth M.
Bridson, P. S., *J.S.*
Brookfield, Kenneth L. P.
Chalmers, Douglas C.
Clark, Olive M.
Clarke, H. T.
Clarke, Mary E.
Colquhoun, Edith J.
Coughlan, M. S. J.
Edgerly, Kate V.
Fendall, Phyllis M.
Flavell, D. R.
Gibbons, Naomi I.
Gray, Christina
Hanby, H. O. T.
Hogg, H. R.
Hunt, Robert P.
Jones, Florence M. de V.
Kirker, H. R., *J.S.*
Langmuir, Hugh B., *J.S.*
Lynch, Edna G. B.
Mahoney, E. J.
Marshall, A. G., *J.S.*

UNDERGRADUATES.

Masefield, John
Metcalfe, George H.
Moore-Jones, Winifred L.
Mowbray, Douglas R. C.
Northcroft, H. C.
Poananga, Henare
Reid, Mabel S.
Scott, Winifred M.
Sisam, K., *J.S.*
Taylor, Fanny J.
Thompson, James F.
Tobin, Charles E. O. H.
Webster, Arthur
Webster, H. E.
Wildman, Susannah, *Sin. S.*

One Year's Terms have been kept by—

Alderton, George E. L.
Allen, M. Esther
Bamford, E. E.
Bawden, J. P.
Beaumont, Clara L.
Black, W. B.
Brookfield, A. W. P.
Brown, A. R.
Budd, E. C.
Buddle, G. A.
Buddle, R.
Burley, W. A.
Campbell, N. A., *J.S.*
Cox, E. T.
Cozens, Edith L. A.
Dickinson, Eva K., *J.S.*
Dunlop, Sylvia R.
Ellis, S. H.
Gillman, Winifred
Goodwin, F. R.
Gray, W. A., *J.S., G.S.*
Griffith, E. Gladys
Goulding, A. M.
Harris, Ethel M.
Harty, Ruth
Hill, J. H.
Hogwood, E. J. L.
Hume, Alan M.
Laseron, Edward B. M.
Lush, A.
Moore, A. E.
Morrison, Ruby
O'Meara, F. J. J.
Penlington, W. G. C.
Robertshawe, N. F. A.
Rogan, Kate
Seddon, Dorothy M.
Stewart, G. M.
Tendall, Claude S.
Wills, W. H.

UNDERGRADUATES.

Students who have not yet kept One Year's Terms—

Algie, C. S
Algie, R M.
Blakey, F. E.
Brooks, Jessie J.
Buddle, Leonard
Clark, George S.
Davies, M. A.
Dobson, C. J. H.
Fordyce, J. C.
Hanna, N. H.
Johns, V. R.
Kavanagh, J. P.
Lorking, S. E.
Louch, Amy L.
McLoughlan, Elizabeth M.
Maslin, W. G.
Needham, A.
Paterson, I. A.
Reynolds, J. B.
Stewart, Mary A.
Tole, J. C.
Tukere, H. Te Anga
Waaka, Wiremu H. K.
Wood, E. A.

ANNUAL EXAMINATION.

After the Annual Examination held in October, 1907, the following Students were credited with having kept the Terms of the year:—

ALDERTON, G. E. L.
ALDRIDGE, W. G.
BAMFORD, E. E.
BAWDEN, J. P.
BEAUMONT, CLARA L.
BLACK, W. B.
BRIDSON, P. S.
BROWN, A. R.
BROWN, MONA M.
BUDD, E. C.
BUDDLE, R.
BURLEY, W. A.
CAMPBELL, N. A.
CLARK, OLIVE M.
CLARKE, H. T.
CLARKE, MARY E.
COLLINS, EDITH C.
COUGHLAN, M. S. J.
COX, E. T.
COZENS, ETHEL L. A.
DICKINSON, EVA R.
EDGERLEY, KATE V.
ELLIS, S. H. (*aegrotans*)
GIBBONS, NAOMI I.
GOULDING, A. M.
GRAY, CHRISTINA
GRAY, W. A.
GRIFFITH, GLADYS E.
HARRIS, ETHEL M.
HARTY, RUTH
HASELDEN, ELLA D.
HAY, MONA C.
HILL, J. H.
HOGG, H. R.
HOGWOOD, E. J. L.
HUNT, R. P.
JORDAN, C. B.
KIRKER, H. R.
LUSH, A.
LYNCH, EDNA G. B.
MAHONEY, E. J.
MARSHALL, A. G.
MASEFIELD, J.
NORTHCROFT, H. C.
O'MEARA, F. J. J.
PENLINGTON, W. A. G.
PICKMERE, L. T.
ROBERTSHAWE, N. F. E.
SIMMONDS, J. C.
SISAM, K.
SMITH, STELLA I.
STEWART, G. M.
TAYLOR, FANNY J.
TAYLOR, R. E.
TOBIN, C. E. O'H.
WEBSTER, H. E.
WELHAM, ALMA A.
WILDMAN, SUSANNAH
WILLS, W. H.

ANNUAL EXAMINATION.

The Students who passed in the several subjects at the Annual Examination of the year 1907 were classified as follows:—

LATIN.

Class I.

Marshall, A. G.
Dickinson, Eva R.
Campbell, N. A.
Harris, Ethel M.
Edgerley, Kate V.
Welham, Alma A.

Class II.

Gray, Christina
Kirker, H. R.
Beaumont, Clara L.
Bridson, P. S.
Robertshawe, N. F. E.
Gibbons, Naomi I.
Stewart, G. M.
Wildman, Susannah
Clark, Olive M.
Hogg, H. R.
Mahoney, E. J.
Budd, E. C.

Class III (Alphabetical).

Alderton, G. E. C.
Bamford, E. E.
Bawden, J. P.
Black, W. B.
Brown, A. R.
Burley, W. H.
Clarke, H. T.
Cox, E. T.
Fordyce, Johanna C.
Goulding, A. M. R.
Griffith, Gladys E.
Hanna, N. H.
Harty, Ruth
Harvey, J. H.
Hogwood, E. J. S.
Hunt, R. P.
Johns, V. R.
Morrison, Ruby
Needham, A.
Northcroft, H. C.
Penlington, W. J. C.
Poananga, H.
Reynolds, J. B.
Rogan, Katherine H.
Taylor, R. E.
Wills, W. H.

GREEK.

Class II.

Robertshawe, N. F. E

ENGLISH.

Advanced.

Senior.

Sisam, K.
Welham, Alma A.

Junior.

Clarke, Mary E.
Haselden, Ella D.
Gibbons, Naomi I.
Dickinson, Eva R.
Hay, Mona C.

Class I.

Lynch, Edna G. B.
Marshall, A. G.
Coughlan, M. S. J.
Taylor, Fanny J.
Harris, Ethel M.
Gray, Christina
Collins, Edith C.
Edgerley, Kate V.
O'Meara, F. J.

Class II.

Jordan, C. B.
Beaumont, Clara L.
Hanby, H. O.
Reid, Mabel S.
Tobin, C. E. O'H.
Wildman, Susannah
Clarke, H. T.
Mahoney, E. J.
Wills, W. H.
Penlington, W. A.

Class III.

Bawden, J. P.
Burley, W. A.
Cox, E. T.
Goulding, A. M.
Harty, Ruth
Hogwood, E. J.
Hunt, R. P.
Kavanagh, J. P.
Masefield, J.
Poananga, H.
Smith, Stella
Speight, H. B.
Tole, J. C.
Webster, H. E.

FRENCH.

Class I.

Sisam, K.
Lynch, Edna G. B.
Gray, Christina
Hay, Mona

Class II.

Harris, Ethel
Dickinson, Ethel

Class III.

Beaumont, Clara
Cozens, Ethel L. A.
Gibbons, Naomi
Harty, Ruth
Haselden, Ella D.

ORAL TEST.

Beaumont, Clara L.
Harris, Ethel
Gray, Christina
Lynch, Edna G. B.
Sisam, K.

JURISPRUDENCE AND CONSTITUTIONAL HISTORY.

Class I.

Mahoney, E. J.
Kirker, H. R.

Class II.

Clarke, H. T.
Hogg, H. R.
Stewart, G. M.
Poananga, H.
Hunt, R. P.

Class III.

Alderton, G. L.
Algie, R. M.
Bawden, J. P.
Black, W. B.
Brown, A. R.
Buddle, L.
Campbell, N. A.
Goulding, A. M.
Hume, A. M.
Kavanagh, J. P.
Northcroft, H. C.
Speight, H. B.
Taylor, R.

CONSTITUTIONAL HISTORY. (only).

Class I.

Clarke, Mary E.

Class III.

Blakey, P. E.

PURE MATHEMATICS.

Higher Standard.

Class I.

Aldridge, W. G.

Ordinary Standard.

Class I.

Gray, W. A.
Lynch, Edna G. B.
Gray, Christina
Wildman, Susannah
Bridson, P. S.
Taylor, Fanny J.
Clark, Olive M.

Class II.

Sisam, K.
Pickmere, L. T.
Coughlan, M. S. J. } equal
Edgerley, Kate V. } equal
Clarke, Mary E.
Webster, H. E.
Rogan, Katherine H.
Griffith, Gladys

Class III.

Algie, C. S.
Algie, R. M.
Budd, E. C.
Cox, E.
Cozens, E. L. Alice
Hay, Mona C.
Hill, J. H.
Lush, A.
Masefield, J.
McLoughlin, Eliz. M.
Robertshawe, N. F. E.
Simmonds, J. C.
Smith, Stella I.
Tobin, C. E. O'H.
Wills, W. H.

APPLIED MATHEMATICS.

Higher Standard.

Class I.

Aldridge, W. G.

Ordinary Standard.

Class I.

Marshall, A. G.
Gray, W. A.
Coughlan, M. S. J.

Class II.

Bridson, P. S.

Class III.

Brown, Mona M.
Clark, Olive M.
Lush, A.
O'Meara, F. J.
Pickmere, L. T.
Simmonds, J. C.
Welham, Alma A.

PHYSICS.

Class I.

Coughlan, M. S. J.
Bridson, P. S.
Gray, W. A.

Class II.

Lush, A.
Brown, Mona M.
Bamford, E. E.
O'Meara, F. J.

Class III.

Buddle, R.

ACOUSTICS.

Class II.

Curtis, M.
Roussel-Cossey, May

CHEMISTRY (Advanced).

Class II.

Taylor, Fanny J.
Simmonds, J. C.
Brown, Mona M.

CHEMISTRY.

Class I.

Marshall, A. G.
Gray, W. A.
Bamford, E. E.

Class III.

Buddle, R.
Lush, A.

PRACTICAL CHEMISTRY.

(Alphabetical order).

Junior.

Bamford, E. E.
Brown, Mona M.
Marshall, A. G.
Simmonds, J. C.
Taylor, Fanny J.

BIOLOGY.

Class I.

Wildman, Susannah
Edgerley, Kate V.

Class II.

Lynch, Edna G. B.
Brown, Mona M.
Beaumont, Clara L.
Buddle, R.
Smith, Stella I

Class III.

Clark, Olive M.
Cozens, Ethel L. A.
Fordyce, Johanna

PRACTICAL BIOLOGY.

Senior.

Wildman, Susannah
Edgerley, Kate V.
Brown, Mona M.
Lynch, Edna
Clark, Olive

Junior.

Buddle, R.
Beaumont, Clara L.
Smith, Stella I.
Cozens, Ethel L. A.
Fordyce, Johanna
Louch, Amy L.

GEOLOGY.

Class I.

Aldridge, W. G.

CLASS II.

SIMMONDS, J. C.
TOBIN, C. E. O'H.
BAMFORD, E. E.

PRACTICAL GEOLOGY.

SENIOR.

ALDRIDGE, W. G.
SIMMONDS, J. C.
TOBIN, C. E. O'H.

JUNIOR.

BAMFORD, E. E.

MENTAL SCIENCE.

CLASS II.

STEWART, G. M.
BEWLEY, W. A. B.
GRIFFITH, GLADYS E.
CAMPBELL, N. A.
JORDAN, C. B.
COX, E. T.
COLLINS, EDITH C.

CLASS III.

ALDERTON, G. L.
BLACK, W. B.
BROWN, A. R.
BUDD, E. C.
BUDDLE, L.
HILL, J. H.
HOGG, H. R.
KIRKER, H. R.
MASEFIELD, J.
NORTHCROFT, H. C.
TAYLOR, R. P.

ECONOMICS.

CLASS II.

BROWNE, G.
HILL, J. H.

CLASS III.

PICKMERE, L. T.
SINCLAIR, O.

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CLASS II.

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Class III.

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CURRENCY AND BANKING.

Class III.

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COMMERCIAL GEOGRAPHY.

Class II.

Browne, G.

ECONOMICS

Class II.

Browne, G.

Class III.

Sinclair, O.

ANNUAL EXAMINATION.

SCHOOL OF COMMERCE.

Passed Second Year's Terms in B. Com. course.

SINCLAIR, O.

Passed Second Examination for Associate of the School of Commerce.

SINCLAIR, O.

Passed First Examination for Associate of the School of Commerce.

BROWNE, G.

SCHOOL OF MUSIC.

ADVANCED DIVISION.

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NONE.

CLASS II.

DENZ, FRANCES

CLASS III.

PROBERT, ELSIE
SILL, LILLIE

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I give (free from legacy duty) the sum of
pounds to the Auckland University College, established at Auckland by "The Auckland University College Act, 1882," and I declare that the receipt of the Registrar for the time being of the said College shall be a sufficient discharge for the said legacy.

NOTE.—If any special direction or condition is to be attached to the Legacy, insert it here.

FORM OF ATTESTATION FOR A WILL.

Signed by the testator
as and for his last will and testament, in the sight and presence of us together, who in his sight and presence, at his request and in the sight and presence of each other, have hereunto subscribed our names as witnesses.

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ANNUAL EXAMINATION,

October, 1907.

LATIN.

HIGHER COMPOSITION AND UNSEENS.

Examiner: C. F. Bourne, M.A. (Oxon.).

I. Translate into Latin:—

Public order rests on two foundations: first, the stability of the governing body; secondly, the accordance of public opinion with the established government, not indeed in every particular, which is neither possible nor even desirable, but in its general tenor. In every age and country there must be disputes concerning the administration of government; but so long as public confidence remains unshaken, the danger is not great. Opinions are in perpetual flux and progress; so long as a government is actuated by the same general spirit and feels the necessity of moving in the same direction, no violent convulsions need be feared. But when the constitutional powers doubt, vacillate, and conflict with one another, whilst, at the same time, opinions essentially hostile to the existing order of things become predominant, then indeed is the peril imminent.

II. Translate into English:—

(*a*) Lucretius desires to follow, not to rival, his great master.

E tenebris tantis tam clarum extollere lumen
qui primus potuisti inlustrans commoda vitae,
te sequor, o Graiae gentis decus, inque tuis nunc
fixa pedum pono pressis vestigia signis,

non ita certandi cupidus quam propter amorem
quod te imitari aveo: quid enim contendat hirundo
cycnis, aut quidnam tremulis facere artubus haedi
consimile in cursu possint et fortis equi vis?
Tu, pater, es rerum inventor, tu patria nobis
suppeditas praecepta, tuisque ex inclute, chartis,
floriferis ut apes in saltibus omnia libant,
omnia nos itidem depascimur aurea dicta,
aurea, perpetua semper dignissima vita.

[Lucretius, 3, I.]

(*b*) "Do good unto thyself, and all men will speak well of thee."

Re ipsa repperi
facilitate nihil esse homini melius neque clementia.
Id esse verum ex me atque ex fratre quoivis facile est noscere.

Ille suam semper egit vitam in otio, in conviviis:
clemens placidus nulli laedere os, adridere omnibus.
Sibi vixit, sibi sumptum fecit: omnes bene dicunt, amant.

Ego ille agrestis saevos tristis parcus truculentus tenax
duxi uxorem; quam ibi miseriam vidi! nati filii;
alia cura. Porro autem illis dum studeo ut quam plurimum
facerem, contrivi in quaerendo vitam atque aetatem meam.

Nunc exacta aetate hoc fructi pro labore ab his fero,
odium; ille alter sine labore patria potitur commoda;
illum amant; me fugitant: illi credunt consilia omnia;
illum diligunt: apud illum sunt ambo; ego desertus sum:
illum, ut vivat, optant; meam autem mortem exspectant scilicet.

[Terence, Ad. 855.]

(*c*) The hopes of the rich man's dependents for an invitation are vain; he feasts alone.

Vestibulis abeunt veteres lassique clientes
votaque deponunt, quamquam longissima cenae
spes homini: caulis miseris atque ignis emendus.
Optimâ silvarum interea pelagique vorabit
rex horum, vacuisque toris tantum ipse iacebit.
Nullus iam parasitus erit. Sed quis ferat istas
luxuriae sordes? Quanta est gula, quae sibi totos
ponit apros, animal propter convivia natum!

[Juvenal, I., 127.]

(*d*) The envoys from Rhodes say that "it takes two to make a quarrel" and their people will not be one of the two.

Vos iudicatis, patres conscripti, sit Rhodus in terris an funditus deleatur; non enim de bello deliberatis, patres conscripti, quod inferre potestis, gerere non potestis, cum nemo Rhodiorum arma adversus vos laturus sit. Si perseverabitis in ira, tempus a vobis petemus, quo hanc funestam legationem domum referamus; omnia libera capita, quidquid Rhodiorum virorum feminarum est, cum omni pecunia nostra naves conscendemus, ac relictis penatibus publicis privatisque Romam veniemus, et omni auro et argento, quidquid publici quidquid privati est, in comitio, in vestibulo curiae vestrae cumulato, corpora nostra coniugumque ac liberorum vestrae potestati permittemus, hic passuri quodcumque patiendum erit: procul ab oculis nostris urbs nostra diripiatur, incendatur; hostes Rhodios esse Romani iudicare possunt, est tamen et nostrum aliquod de nobis iudicium, quod nunquam iudicabimus nos vestros hostes, nec quicquam hostile, etiam si omnia patiemur, faciemus.

[Livy, 45, 24.]

(*e*) Nero seeks to divert the odium of burning Rome from himself to the Christians.

Ergo abolendo rumori Nero subdidit reos et quaesitissimis poenis adfecit, quos per flagitia invisos

vulgus Chrestianos adpellabat. Auctor nominis eius Chrestus, Tiberio imperitante, per procuratorem Pontium Pilatum supplicio adfectus erat: repressaque in praesens exitiabilis superstitio rursus erumpebat, non modo per Iudaeam, originem eius mali, sed per urbem etiam, quo cuncta undique atrocia aut pudenda confluunt celebranturque. Igitur primo conrepti qui fatebantur, deinde indicio eorum multitudo ingens, haud perinde in crimine incendii quam odio humani generis convicti sunt. Et pereuntibus addita ludibria, ut ferarum tergis contecti laniatu canum interirent, aut crucibus adfixi, aut flammandi, atque ubi defecisset dies in usum nocturni luminis urerentur.

[Tacitus, A. 15, 44.]

(*f*) Death is only an interval between two stages of life.

Mors, quam pertimescimus ac recusamus, intermittit vitam, non eripit; veniet iterum qui nos in lucem reponat dies, quem multi recusarent nisi oblitos reduceret. Sed postea diligentius docebo omnia quae videntur perire mutari. Aequo animo debet rediturus exire. Observa orbem rerum in se remeantium: videbis nihil in hoc mundo exstingui, sed vicibus descendere ac surgere. Aestas abit, sed alter illam annus adducit. Hiems cecidit, referent illam sui menses. Solem nox obruit, sed ipsam statim dies abiget. Stellarum iste decursus quicquid praeteriit repetit: pars caeli levatur assidue, pars mergitur. Denique finem faciam si hoc unum adiecero, nec infantes nec insanos timere mortem, et esse turpissimum si eam securitatem nobis ratio non praestat ad quam stultitia perducit.

[Seneca, Ep. 4, 7, 9.]

ix.

ANNUAL EXAMINATION.

LATIN (PASS).

PRESCRIBED BOOKS AND UNSEENS.

Examiner: C. F. BOURNE, M.A. (OXON.).

NOTE.—*Special importance is attached to Question* VII., *which is to be attempted by* ALL.

I. **Translate the following into good literary English:—**

(It should be possible to make it reasonably clear, without the use of notes, that you understand the Latin idiom; but you are permitted to give *a few short notes, for this purpose only, if you find it necessary.*)

(*a*) Nihil sane id prosit Miloni, qui hoc fato natus est ut ne se quidem servare potuerit, quin una rem publicam vosque servaret. Si id iure fieri non potuit, nihil habeo quod defendam: sin hoc et ratio doctis et necessitas barbaris et mos gentibus et feris etiam beluis natura ipsa praescripsit, ut omnem semper vim, quacumque ope possent, a corpore, a capite, a vita sua propulsarent, non potestis hoc facinus improbum iudicare, quin simul iudicetis omnibus qui in latrones inciderint aut illorum telis aut vestris sententiis esse pereundum.

(*b*) In reum de servo accusatoris quum quaeritur, verum inveniri potest? Age vero, quae erat aut qualis quaestio? "Heus tu, Rufio," (verbi causa) "cave sis mentiare; Clodius insidias fecit Miloni?" "Fecit:" certa crux. "Nullas fecit:" sperata libertas. Quid hac quaestione certius? Subito abrepti in quaestionem, separantur tamen a ceteris et in arcas coniciuntur, ne quis cum iis

colloqui possit. Hi centum dies penes accusatorem quum fuissent, ab eo ipso accusatore producti sunt. Quid hac quaestione dici potest integrius? quid incorruptius?

(*c*) Templum sanctitatis amplitudinis mentis consilii publici, caput urbis, aram sociorum, portum omnium gentium, sedem ab universo populo concessam uni ordini, inflammari exscindi funestari! neque id fieri a multitudine imperita, quamquam esset miserum id ipsum, sed ab uno! qui quum tantum ausus sit ustor pro mortuo, quid signifer pro vivo non esset ausus? In curiam potissimum abiecit, ut eam mortuus incenderet quam vivus everterat.

(*d*) Meminit etiam sibi vocem praeconis modo defuisse, quam minime desiderarit; populi vero cunctis suffragiis, quod unum cupierit, se consulem declaratum; nunc denique si haec contra se sint futura, sibi facinoris suspitionem non facti crimen obstare.

II. Make explanatory notes on the following:—

(*a*) Ad flaminem prodendum; (*b*) Amplissimorum ordinum delectis viris; (*c*) Calceos mutavit; (*d*) Reliquit annum suum; (*e*) In pulvinaribus sanctissimis; (*f*) Recensio; (*g*) Malleolus; (*h*) Antestaretur.

III. (*a*) State the line of defence taken by Cicero, and mention any perversions of fact by him. Give the theories of the prosecution and the defence respectively and the probable truth as to how the meeting of Milo and Clodius came about.

(*b*) For what are the following mentioned in this speech?—C. Servilius Ahala, Sextus Clodius, L. Domitius, P. Sestius.

ANNUAL EXAMINATION.

IV. Translate—

(*a*) Virtus, recludens inmeritis mori
Caelum, negata tentat iter via,
Coetusque volgares et udam
Spernit humum fugiente pinna.

Est et fideli tuta silentio
Merces: vetabo, qui Cereris sacrum
Volgarit arcanae, sub isdem
Sit trabibus fragilemque mecum

Solvat phaselon; saepe Diespiter
Neglectus incesto addidit integrum,
Raro antecedentem scelestum
Deseruit pede Poena claudo.

(*b*) Nescit equo rudis
Haerere ingenuus puer
Venarique timet, ludere doctior,
Seu Graeco iubeas trocho,
Seu malis vetita legibus alea,
Cum periura patris fides
Consortem socium fallat et hospitem
Indignoque pecuniam
Heredi properet. Scilicet inprobae
Crescunt divitiae; tamen
Curtae nescio quid semper abest rei.

(*c*) Fortes creantur fortibus et bonis;
Est in iuvencis, est in equis patrum
Virtus, neque inbellem feroces
Progenerant aquilae columbam.

Doctrina sed vim promovet insitam,
Rectique cultus pectora roborant;
Vtcumque defecere mores,
Dedecorant bene nata culpae.

(*d*) Ad quae si properas gaudia, cum tua
Velox merce veni: non ego te meis
Inmunem meditor tingere poculis,
Plena dives ut in domo.

Verum pone moras et studium lucri
Nigrorumque memor, dum licet, ignium
Misce stultitiam consiliis brevem:
Dulce est desipere in loco.

V. Translate, with notes as to construction:—(*a*) Troiae renascens alite lugubri fortuna tristi clade iterabitur; (*b*) Segetis certa fides meae fulgentem imperio fertilis Africae fallit sorte beatior; (*c*) Fies nobilium tu quoque fontium; (*d*) Aetas parentum pejor avis; (*e*) Sollers nunc hominem ponere nunc deum.

VI. Make short notes as to mythological or historical allusions in:—(*a*) Delius et Patareus Apollo; (*b*) Achaemenium costum; (*c*) Spartacum vagantem; (*d*) Monaeses et Pacori manus; (*e*) Calabrae Pierides.

VII. Translate, as above:—

(*a*) (Cicero expresses wonder that Labienus should dare to have and to show an effigy of the revolutionary leader Saturninus.)

Sex. Titius, quod habuit imaginem L. Saturnini domi suae, condemmatus est: statuerunt equites Romani illo judicio improbum civem esse et non retinendum in civitate qui hominis hostilem in modum seditiosi imagine aut mortem ejus honestaret aut desideria imperitorum misericordia moveret aut suam significaret imitandae improbitatis voluntatem. Itaque mihi mirum videtur unde hanc tu, Labiene, imaginem quam tu habes inveneris; nam, Sex. Titio damnato, qui istam habere auderet inventus est nemo: quod tu si audisses aut si per aetatem scire potuisses, nunquam profecto istam imaginem, quae domi posita pestem atque exilium Sex. Titio attulit, in rostra atque in contionem

attulisses nec tuas unquam rates ad eos scopulos appulisses ad quos Sex. Titii adflictam navem et in quibus C. Deciani naufragium fortunarum videres.

(*b*) (The praises of the daughter of Latona, Diana on earth, Luna in the sky.)

Dianae sumus in fide,
Puellae et pueri integri:
Dianam, pueri integri
Puellaeque, canamus.

O Latonia, maximi
Magna progenies Iovis,
Quam mater prope Deliam
*Deposivit olivam,

Montium domina ut fores
Silvarumque virentium
Saltuumque reconditorum
Amniumque sonantum.

Tu cursu, dea, menstruo
Metiens iter annuum
Rustica agricolae bonis
Tecta frugibus exples.

Sis quocunque tibi placet
Sancta nomine, Romulique,
Antique ut solita es, bona
Sospites ope gentem.

* Archaic for "Deposuit."

LATIN.

COMPOSITION AND GRAMMAR.

Examiner: C. F. BOURNE, M.A. (Oxon.).

FOR SENIOR PASS STUDENTS.

I. Translate into Latin:—

(*a*) The Achaeans were encamped on the Isthmus in a strong position; but this was of no avail. The Romans had a fleet supplied by their allies, landing from which everywhere, they ravaged the land with most fearful cruelty. What Themistokles had once told the Peloponnesians, when they wanted to fortify themselves on that spot, now came to pass. Their forces dispersed in all directions to protect their own towns, without being able to do so. A somewhat favourable engagement, in which they defeated a detachment of the Romans, which had advanced too far and was not sufficiently supported, filled the Achaeans with madness: and, thus excited, they rashly attacked the Romans and immediately experienced a very severe defeat.

(*b*) He said that he now repented of what he had done but had been compelled by his own fellow-citizens and the difficulties of the time. Let them, joining their forces, crush the ringleaders of the revolt and bring back those magistrates under whom both they and he had once been so happy. Could anything be more disgraceful than for those whose ancestors had once conquered the world to submit to a few rebels?

ANNUAL EXAMINATION.

FOR JUNIOR PASS STUDENTS.

(*a*) You behaved very differently from what I had hoped.

(*b*) He has returned to the city that he may neither be deprived of his property nor be accused of treason in his absence.

(*c*) If the Senate had made a wise decree, the State would have been saved and all would now be well.

(*d*) Hercules, having left Gades (*pl*), came into the district which is now called Scythia and, when a tempest arose, covered himself with the lion's skin which he was accustomed to use, and lay down to sleep on the ground. It happened that, while he slept, his mares, which he had loosed from his chariot to graze, departed from the place. Then, when he awoke, he set out to find them, and, after seeking them in vain for a long time, met a certain woman and asked her whether she had seen them anywhere. She replied that they were at her home, but that she would never give them back unless he married her.

FOR BOTH SENIORS AND JUNIORS.

II. (*a*) Give the present and perfect infinitive active (or deponent), the supine, if in use, and the English of:—Tollo, Ordior, Coemo, Metior, Repo, Compesco, Mando (2), Deligo, Comminiscor.

(*b*) The gender and genitive singular of:—Rete, Virus, Ebur, Caespes, Nix, Paries. The genitive plural of:—Inops, Animal, Amphora, Aequor, Laurus, Parens, Faber; and the case and number of—Aethera, Frugi, Tempe, Mane, Chlori, Domi, Gai.

III. Distinguish the following pronouns:—Quis, Aliquis, Quilibet, Quisquam, Ullus, Quisquis, Quicunque, Quisque. As to the last, state with what words it may be used and where it should be placed.

IV. By what is the tense of an infinitive dependent on another verb determined? Put the following into Latin, and give a reason for your choice of a tense for each infinitive:—"I think that he is dead," "I knew that this was true," "You ought to have gone away," "I shall always repent of doing this."

V. State and distinguish, by examples with translations attached, the constructions possible with (*a*) Constituo, (*b*) Dubito. Also distinguish between the use of the indicative and that of the subjunctive (*c*) with Dum, and (*d*) in a Concessive Clause, and, as regards the latter, give the principal conjunctions used with each by Cæsar and Cicero.

VI. Put into Latin—(*a*) "Would that the people obeyed the laws." (*b*) "He is a very dear friend to me." (*c*) "Let those taken in war be sold for slaves." (*d*) "I hope you are well." (*e*) "Don't hope to live for ever." (*f*) "You are hated by all."

VII. Write out the following in lines, marking the quantities (—,∪), the divisions of feet [|], the caesura [||] and the elisions [( )]:—"Ut tuto ab atris corpore viperis dormirem et ursis, ut premerer sacra lauroque collataque myrto, non sine dis animosus infans." Name the metre.

ANNUAL EXAMINATION.

GREEK (FIRST YEAR).

PRESCRIBED BOOKS AND UNSEENS.

Examiner: C. F. BOURNE, M.A. (Oxon.)

Special importance is attached to Question V.

I. Translate into good literary English :—

(It should be possible to make it reasonably clear, without the use of notes, that you understand the Greek idiom; but you are permitted to give *a few short notes for this purpose only, if you find it necessary.*)

(*a*) οὐδὲν δ' ἀπολείπετε, ὥσπερ οἱ βάρβαροι πυκτεύουσιν, οὕτω πολεμεῖν Φιλίππῳ. καὶ γὰρ ἐκείνων ὁ πληγεὶς ἀεὶ τῆς πληγῆς ἔχεται, κἂν ἑτέρωσε πατάξῃς, ἐκεῖσέ εἰσιν αἱ χεῖρες· προβάλλεσθαι δ' ἢ βλέπειν ἐναντίον οὔτ' οἶδεν οὔτ' ἐθέλει. καὶ ὑμεῖς, ἐὰν ἐν Χερρονήσῳ πύθησθε Φίλιππον, ἐκεῖσε βοηθεῖν ψηφίζεσθε, ἐὰν ἐν Πύλαις, ἐκεῖσε, ἐὰν ἄλλοθί που, συμπαραθεῖτε ἄνω κάτω, καὶ στρατηγεῖσθε μὲν ὑπ' ἐκείνου, βεβούλευσθε δ' οὐδὲν αὐτοὶ συμφέρον περὶ τοῦ πολέμου, οὐδὲ πρὸ τῶν πραγμάτων προορᾶτε οὐδέν, πρὶν ἂν ἢ γεγενημένον ἢ γιγνόμενόν τι πύθησθε.

(*b*) ἄξιον δὲ ἐνθυμηθῆναι καὶ λογίσασθαι τὰ πράγματα, ἐν ᾧ καθέστηκε νυνί, τὰ Φιλίππου. οὔτε γάρ, ὡς δοκεῖ καὶ φήσειέ τις ἂν μὴ σκοπῶν ἀκριβῶς, εὐτρεπῶς οὐδ' ὡς ἂν κάλλιστ' αὐτῷ τὰ παρόντ' ἔχει· οὔτ' ἂν ἐξήνεγκε τὸν πόλεμόν ποτε τοῦτον ἐκεῖνος, εἰ πολεμεῖν ᾠήθη δεήσειν αὐτόν, ἀλλ' ὡς ἐπιὼν ἅπαντα τότε ἤλπιζε τὰ πράγματα ἀναιρήσεσθαι, κἄτα διέψευσται. τοῦτο δὴ πρῶτον αὐτὸν ταράττει παρὰ γνώμην γεγονός, καὶ πολλὴν ἀθυμίαν αὐτῷ παρέχει, εἶτα τὰ τῶν Θετταλῶν. ταῦτα γὰρ ἄπιστα μὲν ἦν δήπου φύσει καὶ ἀεὶ πᾶσιν ἀνθρώποις, κομιδῇ, δ', ὥσπερ ἦν, καὶ ἔστι νῦν τούτῳ.

(*c*) *φημὶ δὴ δεῖν εἰσφέρειν χρήματα, αὐτοὺς ἐξιέναι προθύμως, μηδέν' αἰτιᾶσθαι πρὶν ἂν τῶν πραγμάτων κρατήσητε, τηνικαῦτα δὲ ἀπ' αὐτῶν τῶν ἔργων | κρίνοντας τοὺς μὲν ἀξίους ἐπαίνου τιμᾶν τοὺς δ' ἀδικοῦντας κολάζειν, τὰς προφάσεις δ' ἀφελεῖν καὶ τὰ καθ' ὑμᾶς ἐλλείμματα· οὐ γὰρ ἔστι πικρῶς ἐξετάσαι τί πέπρακται τοῖς ἄλλοις, ἂν μὴ παρ' ὑμῶν αὐτῶν πρῶτον ὑπάρξῃ τὰ δέοντα.*

(*d*) *εἰ γὰρ αὐτάρκη τὰ ψηφίσματα ἦν ἢ ὑμᾶς ἀναγκάζειν ἃ προσήκει πράττειν ἢ περὶ ὧν ἂν γραφῇ διαπράξασθαι, οὔτ' ἂν ὑμεῖς πολλὰ ψηφιζόμενοι μικρά, μᾶλλον δ' οὐδὲν ἐπράττετε τούτων, οὔτε Φίλιππος τοσοῦτον ὑβρίκει χρόνον· πάλαι γὰρ ἂν ἕνεκά γε ψηφισμάτων ἐδεδώκει δίκην. ἀλλ' οὐχ οὕτω ταῦτ' ἔχει· τὸ γὰρ πράττειν τοῦ λέγειν καὶ χειροτονεῖν ὕστερον ὂν τῇ τάξει, πρότερον τῇ δυνάμει καὶ κρεῖττον ἐστίν. τοῦτ' οὖν δεῖ προσεῖναι, τὰ δ' ἄλλα ὑπάρχει.*

II. (*a*) Describe the geographical position of Olynthus and give a brief account of its relations with Philip and with Athens.

(*b*) What was the law of Eubulus, and what line did Demosthenes take with regard to it?

(*c*) Make short notes on Νομοθέται—Συμμορίαι—Ἀντιδόσεις.

III. Translate into English :—

(*a*) ΝΕΟΠ. *τί οὖν μ' ἄνωγας ἄλλο πλὴν ψευδῆ λέγειν ;*
ΟΔ. *λέγω σ' ἐγὼ δόλῳ Φιλοκτήτην λαβεῖν.*
ΝΕΟΠ. *τί δ' ἐν δόλῳ δεῖ μᾶλλον ἢ πείσαντ' ἄγειν ;*
ΟΔ. *οὐ μὴ πίθηται· πρὸς βίαν δ' οὐκ ἂν λάβοις.*
ΝΕΟΠ. *οὕτως ἔχει τι δεινὸν ἰσχύος θράσος ;*
ΟΔ. *ἰοὺς ἀφύκτους καὶ προπέμποντας φόνον.*
ΝΕΟΠ. *οὐκ ἄρ' ἐκείνῳ γ' οὐδὲ προσμῖξαι θρασύ ;*
ΟΔ. *οὔ, μὴ δόλῳ λαβόντα γ', ὡς ἐγὼ λέγω.*
ΝΕΟΠ. *οὐκ αἰσχρὸν ἡγεῖ δῆτα τὰ ψευδῆ λέγειν ;*
ΟΔ. *οὐκ, εἰ τὸ σωθῆναί γε τὸ ψεῦδος φέρει.*

(*b*) *εἶρπε δ' ἄλλοτ' ἄλλον, τότ' ἂν εἰλυόμενος, | παῖς ἄτερ ὡς φίλας τιθήνας, ὅθεν εὐμάρει' ὑπάρχοι, πόρον, ἀνίκ' ἐξανείη δακέθυμος ἄτα. | οὐ φορβὰν ἱερᾶς γᾶς σπόρον, οὐκ ἄλλων αἴρων, τῶν νεμόμεσθ' ἀνέρες ἀλφησταί, | πλὴν ἐξ ὠκυβόλων εἴποτε τόξων | πτανοῖς ἰοῖς ἀνύσειε γαστρὶ φορβάν.*

XX

ANNUAL EXAMINATION.

5 [illegible] [illegible] [illegible]

ANNUAL EXAMINATION.

V. Translate into English :—

(*a*) All must die, those are happiest who die gloriously in battle.

Εἰ μὲν γὰρ οἷόν τε ἦν τοῖς τοὺς ἐν τῷ πολέμῳ κινδύνους διαφυγοῦσιν ἀθανάτους εἶναι τὸν λοιπὸν χρόνον, ἄξιον ἦν τοῖς ζῶσι τὸν ἅπαντα χρόνον πενθεῖν τοὺς τεθνεῶτας· νῦν δὲ ἥ τε φύσις καὶ νόσων ἥττων καὶ γήρως, ὅ τε δαίμων ὁ τὴν ἡμετέραν μοῖραν εἰληχὼς ἀπαραίτητος. ὥστε προσήκει τούτους εὐδαιμονεστάτους ἡγεῖσθαι, οἵτινες ὑπὲρ μεγίστων καὶ καλλίστων κινδυνεύσαντες οὕτως τὸν βίον ἐτελεύτησαν, οὐκ ἐπιτρέψαντες περὶ αὐτῶν τῇ τύχῃ, οὐδ' ἀναμείναντες τὸν αὐτόματον θάνατον, ἀλλ' ἐκλεξάμενοι τὸν κάλλιστον. καὶ γάρ τοι ἀγήρατοι μὲν αὐτῶν αἱ μνῆμαι, ζηλωταὶ δὲ ὑπὸ πάντων ἀνθρώπων αἱ τιμαί· οἳ πενθοῦνται μὲν διὰ τὴν φύσιν ὡς θνητοί, ὑμνοῦνται δὲ ὡς ἀθάνατοι διὰ τὴν ἀρετήν. καὶ γάρ τοι θάπτονται δημοσίᾳ, καὶ ἀγῶνες τίθενται ἐπ' αὐτοῖς ῥώμης καὶ σοφίας καὶ πλούτου, ὡς ἀξίους ὄντας τοὺς ἐν τῷ πολέμῳ τετελευτηκότας ταῖς αὐταῖς τιμαῖς καὶ τοὺς ἀθανάτους τιμᾶσθαι.

(*b*) Medea wavers but returns to her purpose of slaying her children to punish her husband.

Αἰαῖ, τί δράσω ; καρδία γὰρ οἴχεται,
γυναῖκες, ὄμμα φαιδρὸν ὡς εἶδον τέκνων.
οὐκ ἂν δυναίμην· χαιρέτω βουλεύματα
τὰ πρόσθεν· ἄξω παῖδας ἐκ γαίας ἐμούς.
τί δεῖ με πατέρα τῶνδε τοῖς τούτων κακοῖς
λυποῦσαν αὐτὴν δὶς τόσα κτᾶσθαι κακά ;
οὐ δῆτ' ἔγωγε· χαιρέτω βουλεύματα.
καίτοι τί πάσχω ; βούλομαι γέλωτ' ὀφλεῖν,
ἐχθροὺς μεθεῖσα τοὺς ἐμοὺς ἀζημίους ;
οὗτοι ποτ' ἔσται τοῦθ' ὅπως ἐχθροῖς ἐγὼ
παῖδας παρήσω τοὺς ἐμοὺς καθυβρίσαι.
πάντως σφ' ἀνάγκη κατθανεῖν· ἐπεὶ δὲ χρή,
ἡμεῖς κτενοῦμεν, οἵπερ ἐξεφύσαμεν.

GREEK (FIRST YEAR).

COMPOSITION AND GRAMMAR.

Examiner: C. F. BOURNE, M.A. (Oxon.).

I. Translate into Greek:—

The kings of old were so noble that they were willing to die rather than to live and see the citizens suffering misery. Once, when the Lacedæmonians were beseiging Athens, a certain prophet foretold that, if the king perished, the people would escape the danger. On hearing this, Kodros, the king of that time, formed a plan to die for his country. He therefore put on the garb of a poor man and, secretly quitting the city, proceeded towards the enemy's camp When at last he arrived, two soldiers approached him to inquire what was going on in the city. Kodros straightway attacked and wounded one of them, whereupon the other, enraged at this, drew his sword and killed him. After this, the Athenians sent a herald to the camp to ask for the body, for burial, and to make known whose it was and what had been said by the prophet. So the Lacedaemonians both gave back the body and, as it was no longer possible for them to take the city, retired with their whole force.

II. Give:—

(*a*) The gender and, if in use, the accusative and dative, singular and plural, of ἥρως, υἱός, θυγατήρ, δρομεύς, κλείς, ναῦς, πειθώ; also the same cases of μέγας, ἀργυροῦς, τίς.

(*b*) The comparative and superlative of ῥᾴδιος, δίκαιος, αἰσχρός, ἴσος, ἄνω, τάχα.

(*c*) The 1st person of the future, aorist and perfect active, of λαμβάνω, πίνω, πάσχω, πίμπρημι, ῥήγνυμι, αἱρέω, αἴρω.

(*d*) Person, number, tense, mood and voice of the following:—τλῆθι, ἀφῶμεν, ᾖα, πέφανται, ἵστασαν, εἰδεῖεν, ἴσμεν.

III. Give, with examples, rules for mood (*a*) in an indirect question, (*b*) after ἕως, (*c*) after ὥστε.

IV. Put into Greek:—(*a*) In the time of our ancestors, (*b*) Beyond my power, (*c*) By threes, (*d*) Down stream, (*e*) By the gods, (*f*) In behalf of friends, (*g*) Meanwhile.

V. Put into English, with notes on constructions:—

(*a*) οὐκ ἔφη αὐτὸς ἀλλ' ἐκεῖνον στρατηγεῖν.

(*b*) ᾔσθετο ἀπατηθείς.

(*c*) ὅπως μὴ δικὴν δώσεις.

(*d*) εἶμι τλημονεστάτην ὁδόν.

(*e*) λαβὼν τοῦ στράτου ἀπῆλθεν.

ANNUAL EXAMINATION.

ENGLISH.—FIRST PAPER.

LANGUAGE AND TEXTS.

Examiner: PROFESSOR EGERTON.

Those candidates who have been attending Honours Lectures are requested to substitute for the first four questions those at the end of the paper.

1. Translate:—

(*a*) Dysig bith se *weg-fērenda* mann sē the nimth thone smēthan weg the hine mis-lætt, and for-lætt thone sticolan the hine gebringth tō thære byrig.

(*b*) Hit gebyrede thæt thū befæst mīn feoh myneterum, and ic nāme, thonne ic come, thæt min is, mid thæm gafole.

(*c*) Thā fērdon thā Peohtas, and gefērdon this land northanweard; sūthan-weard hit *hæfdon* Brettas, swā swā wē ær cwædon. And thā Peohtas him ābædon wīf æt *Scottum* on thā gerād thæt hīe *gecuren hiera* cyne-cynn ā on thā wīfhealfe. Thæt hīe hēoldon swā lange siththan.

(*d*) Meires and Maistres · and ye that beoth mene
Bitwene the King and the Comuns · to kepe the lawes,
As to punisschen on pillories · or on pynnyng stoles
Brewesters, Bakers, · Bochers and Cookes;
For theose be men uppon Molde · that most harm worchen,
To the pore people · that percel-mel buggen.
Thei punisschen the peple · priueliche and ofte
And recheth thorw Regratorie · and Rentes hem buggeth.

(*e*) Parse the words in italics in the above passages.

2. Define and describe Middle English and explain how Modern English developed out of it.

3. Decline fully *hē, hēo, hit,* and write a note on the subsequent history of the different forms.

4. Write a note on the development of the English Language during the nineteenth century.

5. The style of *Romeo and Juliet* represents an earlier period of Shakspere's authorship than that of *Hamlet.* Illustrate this statement.

6. Answer *one* of the following:—

(*a*) Define dramatic irony and illustrate your answer by reference to *Hamlet* and *Romeo and Juliet.*

(*b*) Write a short character sketch of Laertes or Mercutio.

7. Give the substance of any one of Hamlet's soliloquies, and show how it reveals his character.

8. Explain the following passages, giving context in each case; quote parallels where you can:—

(*a*) Why should you fall into so deep an O?

(*b*) To my teen be it spoken I have but four.

(*c*) Now no soil nor cautel doth besmirch
The virtue of his will.

(*d*) I am but mad north-north-west; when the wind is southerly I know a hawk from a handsaw.

(*e*) A vice of kings.

9. (*a*) How did Burke regard the action of the French Assembly in "sweeping away the existing system"? What light is thrown upon his political principles by his remarks on this subject?

(*b*) Explain the following allusions:—"These new Mess-Johns," "the murder of Patkul," "Helvetius has made no progress with us," "learned academicians of Laputa and Balnibarbi," "the vast undertaking of the Encyclopædia."

10. (*a*) How does Macaulay compare Bacon with Epictetus? Discuss the justice of his comparison.

(*b*) Give the substance of Macaulay's criticism of Horace Walpole as a writer.

(*c*) Explain:—

(i) Not even Ensign Northerton, not even the captain described in Hamilton's Bawn, ... would have denied that a gentleman might sometimes correspond with his friends.

(ii) To borrow the Lady Hero's phrase.

(iii) If he knows nothing of Pyrgopolynices and Thraso, he is familiar with Bobadil, and Bessus, and Pistol and Parolles.

(iv) Even Sir Edward Coke for the first time in his life behaved like a gentleman.

The following questions are to be answered only by those candidates who have been attending Honours Lectures in English.

A.—JUNIOR.

1. Translate:—

(*a*) Thā æfter fierste siththan hīe āfarene wæron, cōm thæt land-folc tō, the thær tō lāfe wæs, thær hiera hlāfordes līc læg būtan hēafde, and wurdon swithe sārige for his slege on mōde, and hūru thæt hīe næfden thæt hēafod tō thæm bodige.

(*c*) φημὶ δὴ δεῖν εἰσφέρειν χρήματα, αὐτοὺς ἐξιέναι προθύμως, μηδέν' αἰτιᾶσθαι πρὶν ἂν τῶν πραγμάτων κρατήσητε, τηνικαῦτα δὲ ἀπ' αὐτῶν τῶν ἔργων | κρίναντας τοὺς μὲν ἀξίους ἐπαίνου τιμᾶν τοὺς δ' ἀδικοῦντας κολάζειν, τὰς προφάσεις δ' ἀφελεῖν καὶ τὰ καθ' ὑμᾶς ἐλλείμματα· οὐ γὰρ ἔστι πικρῶς ἐξετάσαι τί πέπρακται τοῖς ἄλλοις, ἂν μὴ παρ' ὑμῶν αὐτῶν πρῶτον ὑπάρξῃ τὰ δέοντα.

(*d*) εἰ γὰρ αὐτάρκη τὰ ψηφίσματα ἦν ἢ ὑμᾶς ἀναγκάζειν ἃ προσήκει πράττειν ἢ περὶ ὧν ἂν γραφῇ διαπράξασθαι, οὔτ' ἂν ὑμεῖς πολλὰ ψηφιζόμενοι μικρά, μᾶλλον δ' οὐδὲν ἐπράττετε τούτων, οὔτε Φίλιππος τοσοῦτον ὑβρίκει χρόνον· πάλαι γὰρ ἂν ἕνεκά γε ψηφισμάτων ἐδεδώκει δίκην. ἀλλ' οὐχ οὕτω ταῦτ' ἔχει· τὸ γὰρ πράττειν τοῦ λέγειν καὶ χειροτονεῖν ὕστερον ὂν τῇ τάξει, πρότερον τῇ δυνάμει καὶ κρεῖττον ἐστίν. τοῦτ' οὖν δεῖ προσεῖναι, τὰ δ' ἄλλα ὑπάρχει.

II. (*a*) Describe the geographical position of Olynthus and give a brief account of its relations with Philip and with Athens.

(*b*) What was the law of Eubulus, and what line did Demosthenes take with regard to it?

(*c*) Make short notes on Νομοθέται—Συμμορίαι—Ἀντιδόσεις.

III. Translate into English:—

(*a*) ΝΕΟΠ. τί οὖν μ' ἄνωγας ἄλλο πλὴν ψευδῆ λέγειν;
ΟΔ. λέγω σ' ἐγὼ δόλῳ Φιλοκτήτην λαβεῖν.
ΝΕΟΠ. τί δ' ἐν δόλῳ δεῖ μᾶλλον ἢ πείσαντ' ἄγειν;
ΟΔ. οὐ μὴ πίθηται· πρὸς βίαν δ' οὐκ ἂν λάβοις.
ΝΕΟΠ. οὕτως ἔχει τι δεινὸν ἰσχύος θράσος;
ΟΔ. ἰοὺς ἀφύκτους καὶ προπέμποντας φόνον.
ΝΕΟΠ. οὐκ ἆρ' ἐκείνῳ γ' οὐδὲ προσμῖξαι θρασύ;
ΟΔ. οὔ, μὴ δόλῳ λαβόντα γ', ὡς ἐγὼ λέγω.
ΝΕΟΠ. οὐκ αἰσχρὸν ἡγεῖ δῆτα τὰ ψευδῆ λέγειν;
ΟΔ. οὐκ, εἰ τὸ σωθῆναί γε τὸ ψεῦδος φέρει.

(*b*) εἶρπε δ' ἄλλοτ' ἄλλον, τότ' ἂν εἰλυόμενος, | παῖς ἄτερ ὡς φίλας τιθήνας, ὅθεν εὐμάρει' ὑπάρχοι, πόρον, ἀνίκ' ἐξανείη δακέθυμος ἄτα. | οὐ φορβὰν ἱερᾶς γᾶς σπόρον, οὐκ ἄλλων αἴρων, τῶν νεμόμεσθ' ἀνέρες ἁλφησταί, | πλὴν ἐξ ὠκυβόλων εἴποτε τόξων | πτανοῖς ἰοῖς ἀνύσειε γαστρὶ φορβάν.

ANNUAL EXAMINATION.

(*c*) ΦΙΛ. οἴμοι μοι, καί που πολιᾶς | πόντου θινὸς ἐφήμενος, | γελᾷ μου, χερὶ πάλλων | τὰν ἐμὰν μελέου τροφάν, | τὰν οὐδείς ποτ' ἐβάστασεν. | ὦ τόξον φίλον, ὦ φίλων | χειρῶν ἐκβεβιασμένον, | ἦ που ἐλεινὸν ὁρᾷς, φρένας εἴ τινας | ἔχεις, τὸν Ἡράκλειον | ἄρθμιον ὧδέ σοι | οὐκ ἔτι χρησόμενον τὸ μεθύστερον | ἔτ', ἀλλ' ἐν μεταλλαγᾷ | πολυμηχάνου ἀνδρὸς ἐρέσσει, | ὁρῶν μὲν αἰσχρὰς ἀπάτας, στυγνόν τε φῶτ' ἐχθοδοπόν, | μυρί' ἀπ' αἰσχρῶν ἀνατέλλονθ', ὅσ' ἐφ' ἡμῖν κάκ' ἐμήσατ', ὦ Ζεῦ.

(*d*) ἃ δ' ἂν λάβῃς σὺ σκῦλα πολεμίου στρατοῦ,
τόξων ἐμῶν μνημεῖα πρὸς πυρὰν ἐμὴν
κόμιζε. καὶ σοὶ ταῦτ', Ἀχιλλέως τέκνον,
παρήνεσ'· οὔτε γὰρ σὺ τοῦδ' ἄτερ σθένεις
ἑλεῖν τὸ Τροίας πεδίον οὔθ' οὗτος σέθεν.
ἀλλ' ὡς λέοντε συννόμω φυλάσσετον
οὗτος σὲ καὶ σὺ τόνδ'. ἐγὼ δ' Ἀσκληπιὸν
παυστῆρα πέμψω σῆς νόσου πρὸς Ἴλιον.

IV. Translate the following and add short notes as to grammar:—

(*a*) πρὸς δὲ τοῦθ' ὅ μοι βάλοι
νευροσπαδὴς ἄτρακτος, αὐτὸς ἂν τάλας
εἰλυόμην, δύστηνον ἐξέλκων πόδα.

(*b*) τοιαῦτ' ἀκούσας κἀξονειδισθεὶς κακά.

(*c*) οὐ γὰρ ἂν σθένοντά γε
εἶλέν μ' ἐπεὶ οὐδ' ἂν ὧδ' ἔχοντ' εἰ μὴ δόλῳ.

(*d*) φόνον φόνου δὲ ῥύσιον τείσω τάλας,
πρὸς τοῦ δοκοῦντος οὐδὲν εἰδέναι κακόν.

(*e*) δῆλος δὲ καὶ νῦν ἐστὶν ἀλγεινῶς φέρων
οἷς τ' αὐτὸς ἐξήμαρτεν οἷς τ' ἐγὼ 'παθον.

ANNUAL EXAMINATION.

ENGLISH.—SECOND PAPER.

LITERATURE AND COMPOSITION.

Examiner: PROFESSOR EGERTON.

1. Give an account of the lyrical poems of one of the following:—Herbert, Vaughan, Crashaw.

2. Make a list of Milton's poems before the outbreak of the Civil War and give an account of any one of them.

3. Discuss Milton's treatment of the Supernatural in *Paradise Lost*. Illustrate your answer by references and quotations.

4. Contrast the style of Jeremy Taylor with that of Fuller.

5. (*a*) Exhibit your acquaintance with any one of Dryden's satirical portraits.

   (*b*) Where and how does Dryden express his views on the use of rhyme in tragedy?

6. Write a note on Herrick's pictures of rural life.

7. Give some account of the political philosophy of Hobbes. On what assumptions is it founded? What attempts were made to confute it?

8. (*a*) Give some account of the *Pilgrim's Progress*.

   (*b*) Write a short appreciation of Browne's *Religio Medici*.

9. (To be answered as briefly as possible.)

(*a*) Name the authors and give a short description of:—

The Mistress, Cœlum Britannicum, Annus Mirabilis, Hydriotaphia Oroonoko.

(*b*) Fix the following quotations:—

(i) But oh! the heavy change, now thou art gone,
Now thou art gone and never must return!
Thee Shepherd, thee the woods and desert caves,
With wild thyme and the gadding vine o'ergrown,
And all their echoes, mourn.

(ii) Give me but what this ribbon bound,
Take all the rest the sun goes round.

(iii) They are all gone into the world of light,
And I alone sit lingering here.

(iv) Who overcomes
By force, hath overcome but half his foe.

(v) We grant although he had much wit
He was very shy of using it.

(vi) Great wits are sure to madness near allied,
And thin partitions do their bounds divide.

SUBJECTS FOR ESSAY.

(Only *one* to be selected.)

1. Shakspere's methods as a Dramatic Artist, as illustrated by *Romeo and Juliet* and *Hamlet.*

2. *Ophelia.*

3. Burke's Political Philosophy.

4. Macaulay considered as a Critic.

ANNUAL EXAMINATION.

PURE MATHEMATICS.

PAPER *a*.—GEOMETRY AND TRIGONOMETRY.

Examiner: PROFESSOR H. W. SEGAR, M.A.

N.B.—*In determining the order of merit, credit will be included for answers to questions marked with an asterisk, but such answers are not expected in order to qualify for any of the several classes.*

1. Any two sides of a triangle are together greater than the third side.

   ABC is a triangle, and the vertical angle BAC is bisected by a line which meets BC in X; show that BA is greater than BX, and CA greater than CX.

2. Construct a right-angled triangle having given the hypotenuse and one side.

   Construct a triangle having given an angle, the difference between the opposite side and a second side, and the third side.

3. Draw a triangle equal in area to a given quadrilateral. The area of a quadrilateral is equal to the area of a triangle having two of its sides equal to the diagonals of the given figure, and the included angle equal to either of the angles between the diagonals.

4. The areas of similar triangles and of similar polygons are proportional to the squares on corresponding sides.

   If DEF be the pedal triangle of the triangle ABC, prove that the areas AFDC, DBF are proportional to the squares on AD, BD.

5. Planes to which the same straight line is perpendicular are parallel to one another.

A plane is drawn through the centre of a cube perpendicular to a diagonal; find the form of the section.

6.* If P be any point on the circumcircle of an equilateral triangle ABC, show that the greatest of the distances AP, BP, CP is equal to the sum of the other two.

Through a given point E in the side AB of a triangle ABC draw a straight line cutting AC in F and BC produced in D, such that EF:FD shall be equal to FC:AF.

7. Prove, two at least geometrically,

(i.) $cosec^2\theta = 1 + cot^2\theta$.

(ii.) $cos\ 15^\circ = \frac{\sqrt{3}+1}{2\sqrt{2}}$

(iii.) $tan\ (A+B) = \frac{tan\ A + tan\ B}{1 - tan\ A\ tan\ B}$.

(iv.) $cos\ \frac{A}{2} = \sqrt{\frac{s(s-a)}{bc}}$.

8. Prove

(i.) $sec\ A = \frac{1 + tan^2\frac{A}{2}}{1 - tan^2\frac{A}{2}}$

(ii.) $sec\left(\frac{\pi}{4} + \theta\right) sec\left(\frac{\pi}{4} - \theta\right) = 2\ sec\ 2\theta$.

(iii.) $\frac{sin\ B\ sin\ C + sin\ C\ sin\ A + sin\ A\ sin\ B}{bc + ca + ab} = \frac{sin^2 A}{a^2}$.

9. Explain and prove the formula

$$\theta = n\pi + (-1)^n a.$$

Solve the equation

$$\tan\theta + \cot\theta = \frac{4}{\sqrt{3}}.$$

10. Find the angles and the area of the triangle whose sides are 4, 5, 6 feet respectively.

11.* Two straight lines OA, OB, of lengths a, b, include an angle α, and straight lines AP, BP, meeting in P, are drawn at right angles to OA, OB; prove that if P fall within the angle α, the area of OAPB is

$$\frac{2ab - (a^2 + b^2)\cos\alpha}{2\sin\alpha}.$$

12.* Eliminate c between

$$a^2 = b^2 + c^2 - 2bc\cos A$$

and $$b^2 = a^2 + c^2 - 2ac\cos B.$$

Find x from the equation

$$3\tan^{-1}(x+1) = 2\tan^{-1}(x-1) + \tan^{-1}\frac{x}{2-x}.$$

ANNUAL EXAMINATION.

PURE MATHEMATICS.

PAPER *b*.—ALGEBRA.

Examiner: PROFESSOR H. W. SEGAR, M.A.

N.B.—*In determining the order of merit, credit will be included for answers to questions marked with an asterisk, but such answers are not expected in order to qualify for any of the several classes.*

1. Simplify

(i.) $a^{\frac{2}{3}} (b^{\frac{1}{2}} c^{-2})^{\frac{1}{2}} \div a^{\frac{1}{3}} b^{\frac{1}{4}} c$

(ii.) $\sqrt{\dfrac{3 \log 1728}{1 + \frac{1}{2} \log \cdot 36 + \frac{1}{3} \log 8}} \times \frac{1}{6}$

(iii.) $a(b+c)(b^2+c^2-a^2) + b(c+a)(c^2+a^2-b^2) + c(a+b)(a^2+b^2-c^2)$.

2. Factor

(i.) $x^2 - 3x(a+b) - 4(a+b)^2$

(ii.) $a^2(b+c) + b^2(c+a) + c^2(a+b) + a^3 + b^3 + c^3$

Which quantity is the greater

$$\frac{x}{y^2} + \frac{y}{x^2} \text{ or } \frac{1}{x} + \frac{1}{y}$$

x, y being both positive?

3. Solve the equations—

(i.) $\frac{12}{x} + 6x = 17$,

(ii.) $-x+y+z=x-y+z=x+y-z=5$

(iii.) $\frac{1}{x+\sqrt{2-x^2}} + \frac{1}{x-\sqrt{2-x^2}} = x$.

4. Prove that a quadratic equation cannot have more than two roots.

If α, β be the roots of $ax^2+bx+c=o$, and $\frac{\alpha}{\beta}, \frac{\beta}{\alpha}$ those of $px^2+qx+r=o$, show that

$$b^2r+acq=2apc.$$

5. Simplify—

$$\sqrt{\frac{\sqrt{3}+\sqrt{2}}{\sqrt{3}-\sqrt{2}}}.$$

If a, b, c, d be in continued proportion, prove that

$$\frac{2a+3d}{3a-4d} = \frac{2a^3+3b^3}{3a^3-4b^3}.$$

6. Sum the series

$$16\tfrac{1}{2}+14+11\tfrac{1}{2}+\text{---}$$

to 14 terms. To how many terms must the series be taken for the sum first to become negative?

If the sum of n terms of a series be

$$nx + \frac{n+1}{2}\cdot\frac{n}{x},$$

find the series.

7. Find the number of permutations of n things taken together when the things are not all unlike.

How many different numbers can be formed from the figures of 111223, taken 1, 2, ... 6, at a time?

8. Write down the middle term in the expansion of

$$\left(\frac{x}{2} - 3y\right)^8,$$

also the $r + \overline{1}\text{th}$ term in the expansion of $(1-3x)^{-\frac{1}{3}}$, and the greatest in the expansion of $(1-\frac{1}{6})^{17}$.

9.* Sum the series

$$1 + 2x + 3x^2 + 4x^3 + \text{- - - - -}$$

to n terms and to infinity. What is the condition that the latter summation may be possible?

10.* Prove that

$$\sqrt{8} = 1 + \tfrac{3}{4} + \frac{3.5}{4.8} + \frac{3.5.7}{4.8.12} + \text{- - - - -}.$$

11.* If

$$x(b-c) + y(c-a) + z(a-b) = 0,$$

show that

(i.) $$\frac{bz-cy}{b-c} = \frac{cx-az}{c-a} = \frac{ay-bx}{a-b},$$

(ii.) $$\frac{y-z}{b-c} = \frac{z-x}{c-a} = \frac{x-y}{a-b}.$$

ANNUAL EXAMINATION.

APPLIED MATHEMATICS.

MECHANICS AND HYDROSTATICS.

Examiner: PROFESSOR H. W. SEGAR, M.A.

N.B.— In determining the order of merit, credit will be included for answers to questions marked with an asterisk, but such answers are not expected in order to qualify for any of the several classes.

1. State and prove the triangle of velocities.

   A point possesses simultaneously velocities of 2, 3, 8 feet per second, making angles of 120° with one another; find the magnitude of its resultant velocity.

2. Describe Atwood's Machine and an experiment with it for finding the value of g.

   An engine exerting a force equal to 3 tons weight pulls a train of mass 100 tons up an incline of 1 in 100; taking the frictional resistance as 11·2lbs. wt. per ton, find the acceleration of the train.

3. A particle describes a circle with constant speed, find the acceleration and constraining force.

   A seconds pendulum is lengthened ·05 inch; find the number of seconds it will lose in 24 hours.

*4. A heavy particle attached to a fixed point by a light string makes complete revolutions in a vertical plane under the action of gravity. If the ratio of its maximum to its minimum velocity be 7:4, show that the maximum tension of the string will be to the minimum in the ratio of 229:31.

ANNUAL EXAMINATION.

5. Show that the sum of the moments of two forces acting at a point about any given point is equal to the moment of their resultant about the same point. State the most general theorem you know of this character.

Show that the sum of the moments of forces acting at a point in a plane cannot have the same value at each of three points unless the three points lie in one straight line parallel to a certain straight line.

6. Show how to reduce a system of parallel forces in one plane.

A light rigid rod 20 feet long is supported in a horizontal position on two posts 9ft apart, one post is 4ft from the end of the rod; from the middle point of the rod a weight of 63lbs is suspended; find the pressures on the posts.

7. What is meant by stability and instability of equilibrium. Discuss the cases of a body (i) with one point fixed and (ii) resting with a curved base on a horizontal plane.

A circular board weighing 10lbs is made into a table by the addition of four legs without weight fixed perpendicular to its plane at equidistant points on its circumference; find the least weight with which it is possible to upset the table by placing the weight on it.

8. Find the relation between the power and the weight in an inclined plane when the power makes an angle θ with the plane.

If a horizontal power P supports W, and P′ parallel to the plane also supports W, then

$$\frac{1}{P'^2} - \frac{1}{P^2} = \frac{1}{W^2}.$$

*9. State the laws of friction.

A uniform rod of length $2a$ presses with its lower end on a rough vertical wall and rests on a smooth horizontal peg at a distance b from the wall. If the coefficient of

friction is *tan* λ, prove that the equation giving the limiting values of θ the inclination of the rod to the wall is

$$\frac{b}{a} = \frac{sin^2\ \theta\ sin\ (\theta \pm \lambda)}{cos\ \lambda}.$$

10. Show that the pressure at any point within a heavy inelastic fluid, not exposed to external pressure, is proportional to the depth of that point below the surface of the fluid.

If a pipe, whose height above the bottom of a vessel is 112 feet, be inserted vertically in the vessel, and the whole be filled with water, find the thrust in tons on the bottom of the vessel, the area of the bottom being 4 square feet. How would the thrust be changed if the pipe were inclined 60° to the vertical?

11. Find the resultant pressure of a fluid on a body partially immersed and floating in the fluid.

If a cube float on water with one force horizontal, and a body weighing $\frac{1000}{3}$ oz., when placed upon it, make it sink through an inch, find the size of the cube.

12. Describe the forcing pump and its application in the fire engine.

A siphon, filled with water, has its ends inserted in vessels filled with water; state what will take place when the vertical distances of the highest point of the siphon above the surface of the fluid are both less, both greater, and one greater and the other less than the height of the water barometer.

*13. A cone is totally immersed in a fluid, the depth of the centre of its base being given. Prove that P, P′, P″ being the resultant pressures on its convex surface, when the sines of the inclination of its axis to the horizon are s, s', s'', respectively,

$$P^2\ (s' - s'') + P'^2\ (s'' - s) + P''^2\ (s - s') = 0.$$

xxxix.

ANNUAL EXAMINATION.

CHEMISTRY.—SENIOR.

Examiner: F. P. Worley, M.A., M.Sc.

1. Give an account of Victor Meyer's method of determining vapour densities. The molecular weight of a substance is said to be twice its density compared with hydrogen: explain this. What deductions have been made from determinations of the vapour densities of phosphorus, sulphur, and iodine at different temperatures?

2. Give a historical account of the different ideas that have been held regarding the constitution of water and of the discoveries that have led to the overthrow or modification of old ideas.

3. Show that Boyle's Law and Avogadro Law are in accordance with the Kinetic Theory of gases.

4. What evidence in support of the theory that salts in aqueous solution are partially or wholly ionised can be obtained from the study of the salts of copper? How would you define an acid and a base according to this theory? State with reasons in which class you would place the hydrates of aluminium and zinc.

5. What is meant by (1) the valency of an element, (2) the basicity of an acid? Write down the graphic formulæ for the following substances:—Calcium bicarbonate, disodium hydrogen phosphate, sodium pyrophosphate, aluminium orthophosphate, sodium hypophosphite.

6. On analysis 0·3486 gram of an organic liquid yielded 0·7933 gram of carbon dioxide gas and 0·3246 gram of water: what is the simplest formula of the substance? By what methods could you determine its molecular weight?

7. How would you determine the heat of formation of marsh gas? Give examples of exothermic and of endothermic substances. How do you explain the fact that hydriodic acid which is an endothermic substance can be produced by passing sulphuretted hydrogen gas through an aqueous solution of iodine?

ANNUAL EXAMINATION.

CHEMISTRY.

Examiner: F. P. WORLEY, M.A., M.Sc.

1. Describe with examples the different methods of preparing nitrates. What is the action of heat on nitrates?

2. How would you find the percentage of oxygen in potassium chlorate? What weight and what volume of oxygen measured at 17° C. and 783 mm. pressure can be obtained from 5 gms. of potassium chlorate?

   Atomic weights of oxygen, chlorine, and potassium are 16, 35·5, 39, respectively.

3. Describe and explain the reactions that take place when copper turnings and strong sulphuric acid are heated together. What is the action of the evolved gas on potassium permanganate, potassium bichromate, calcium hydrate, and potassium iodate?

4. What evidence can be obtained from the colours of salt solutions in support of the ionisation theory? What happens according to this theory when (1) a solution of hydrochloric acid is added to one of caustic soda, (2) dilute sulphuric acid is added to a solution of barium chloride, (3) a solution of common salt is added to one of potassium nitrate?

5. What is the law of multiple proportions? Illustrate it by means of the oxides of lead. How may these oxides be prepared? How would you detect the presence of red lead in litharge?

   Atomic weight of lead = 207.

ANNUAL EXAMINATION.

6. What is the action of concentrated sulphuric acid on potassium bromide, potassium chlorate, iron, oxalic acid, calcium phosphate, and manganese dioxide?

7. Give an account of the chief ores and the method of extraction from them of one of the following metals:—Silver, zinc, mercury, copper.

8. How would you find the volumetric composition of hydrochloric acid gas and of ammonia?

9. Make a list of the chlorides and sulphates that are insoluble in water. How may the latter be converted into the corresponding chlorides?

10. Compare and contrast the chemical and physical properties of phosphorus and arsenic.

ANNUAL EXAMINATION.

EXPERIMENTAL PHYSICS.

MAGNETISM AND ELECTRICITY.

Examiner: F. P. WORLEY, M.A., M.Sc.

1. What do you mean by (*a*) a magnet pole of unit strength, (*b*) a magnetic field of unit strength, (*c*) the magnetic moment of a magnet?

   How would you compare the magnetic moments of two bar magnets of the same size and shape?

2. A suspended magnetic needle makes 13 vibrations per minute under the influence of the earth alone. When a bar-magnet is placed North of the needle with its N. pole pointing towards the needle, the latter makes 7 vibrations per minute. How many will it make when the bar-magnet is similarly placed at the same distance South of the needle with its N. pole again pointing towards the needle?

3. Describe Faraday's ice-pail experiment, and explain it from the point of view of lines of force. What deductions are made from it?

4. Describe a quadrant electrometer, and explain how you would use it to compare the E.M.F. of a Bunsen cell with that of a Clark's standard cell. A battery of E.M.F. 5 volts and 2 ohms internal resistance has its terminals connected by a wire of 10 ohms resistance. What is now the potential difference between the terminals?

5. Define the C.G.S. electro-magnetic units of quantity, resistance, current, potential difference. What are the corresponding practical units and what are their values in C.G.S. units?

6. Describe Ruhmkorff's induction coil, and explain the use of the condenser usually attached to it.

7. Describe and explain the method of measuring resistances by Wheatstone's Wire Bridge.

8. Find an expression for the heat produced in a conductor by a current of electricity passing through it, and describe in detail an experiment in which this result may be used to determine the value of J.

9. Describe and explain a simple kind of dynamo. In what different ways may the field magnets be excited, and what are their respective advantages and disadvantages?

10. Make drawings showing the directions of the lines of force near (1) two parallel conductors carrying currents in the same direction and also in opposite directions, (2) a single conductor carrying a current at right angles to a uniform magnetic field. Explain according to the idea of lines of force the mechanical forces acting on the conductors.

ANNUAL EXAMINATION.

BIOLOGY.

Examiner: PROFESSOR A. P. W. THOMAS.

Medical Students may attempt questions in Sections I., II., *and* IV., *but must not take more than eight questions altogether, nor more than three in any one section.*

All answers to be illustrated with fully labelled diagrams wherever possible.

I.—GENERAL BIOLOGY.

1. Give an account of the structure and life-history of Haematococcus. In what respects does Amoeba differ from Haematococcus?

2. Give a short account of the structure and mode of reproduction of Hydra.

3. What are the functions of a nervous system? Give a general account of the nervous system of the Frog.

4. Explain briefly the following terms and give examples:—(*a*) Vestigial organs, (*b*) Protective resemblances, (*c*) Discontinuity of distribution.

II.—JUNIOR BOTANY.

1. Describe carefully the structure seen in the phloem (bast) of any flowering plant.

2. Explain what is meant by transpiration in plants. What purpose does it serve? Show how the rate of transpiration under different conditions may be measured and compared.

3. Give an account of the ovule of Lilium (or any flowering plant) and trace the process of fertilisation and formation of seed. Describe briefly the seed of Lilium.

4. Describe any flower belonging to the Ranunculaceae and compare it with a flower of the order Rosaceae.

III.—SENIOR BOTANY.

1. Give an account of the phenomena of respiration in plants, showing the necessity for respiration. How can the rate of respiration be measured?

2. What substances are commonly stored as food in plants? Give examples of organs used for the storage of food in plants, briefly commenting on their structure and the substances stored in each case.

3. Give a short account of the life-history of Volvox. In what way does Vaucheria differ from Volvox?

4. Compare and contrast the reproductive organs in Selaginella and Pinus.

5. Give an account of structure and life-history of any Lichen.

6. Give an account of the structure of the flower and fruit in Labiatae.

IV.—ZOOLOGY.

1. Give an account of the central nervous system in the Earthworm and Dog-fish. How far are they comparable?

2. Write a short account of the life-history of either Tapeworm or Fluke.

3. Draw sketches sufficient to show the structure of the heart and chief arteries in the Dog-fish, Frog and Rabbit.

4. What are the functions of the excretory system? Briefly describe the organs of excretion in the Earthworm and Frog.

ANNUAL EXAMINATION.

GEOLOGY.

Examiner: Professor A. P. W. Thomas.

1. Define a volcano and describe the chief types of volcanic activity. What do you suppose volcanic activity to be due to?

2. Describe the chief forms taken by intrusive rocks. A mass of granite is found intruded into a series of shales, sandstones and limestones. What alterations would you expect to find in the sedimentary rocks?

3. Draw sections to illustrate the following:—Overlap, Unconformable junction, Overthrust, Trough-fault, Escarpment. Explain briefly how the features shown in your sections have been produced.

4. Discuss the methods employed in the classification of sedimentary rocks. What difficulties arise in the case of rocks occurring in places widely separated from one another, and how can they be dealt with?

5. Give some account of the evidence as to the origin of coal-seams. Show that coal-deposits have been formed in various geological periods. Briefly describe the character of the floras associated with the coal-deposits referred to.

6. What are the fossils you would rely upon to establish the age of marine beds of the Carboniferous, Jurassic, and Miocene periods respectively?

7. What do you know of the nature, distribution in time and importance of the following:—Archaeopteryx, Hipparion, Glossopteris, Aturia, Productus, Monotis, Spiriferina, Mastodonsaurus?

SCHOOL OF MUSIC.—ADVANCED DIVISION.

Examiner: DR. W. E. THOMAS.

Time allowed: *Three hours.*

1. Harmonize this melody in four parts:—

2. Add 4 parts to this figured bass:—

ANNUAL EXAMINATION.

3. State your opinion of Beethoven (1) as a melodist, (2) contrapuntist, and (3) say what position he holds in musical composition.

4. Give (1) 2 subjects from Bach's 48; (2) and 2 1st subjects from Beethoven's Sonatas.

5. Score for 2 flutes, 2 oboes, 2 clarinets, 2 bassoons, 4 horns, 2 trumpets, 3 trombones, drums, and the usual strings:—

N.B.—Each pair of instruments may be put on one line in woodwind; horns, trumpets, 3 trombones, and 'celli and Bassi also.

6. Complete this Canon in 10 bars.

7. Answer tonally and give an exposition in 4 parts; the C.S. must be in D. Cpt; also, give any stretto the subject may be capable of:—

8. Harmonize in 5 parts. N.a.N.

9. Add a 4th above and 3rd below.

[*Nos.* 1, 2, 6, 7, 8, 9 *must be attempted.*]

SCHOOL OF MUSIC.—Intermediate Division.

Examiner: Dr. W. E. Thomas.

Time allowed : Three hours.

1. Harmonize in four parts (alto and tenor clefs must be used). Give roots of chords marked *.

2. Modulate, keeping up this style, to A mi, F ma, D mi, G ma, and back to C:—

ANNUAL EXAMINATION.

3. Harmonize in four parts:—

4. Give a sketch of Sonata, Aria, and Rondo forms; name any movements in Beethoven that are written in these forms.

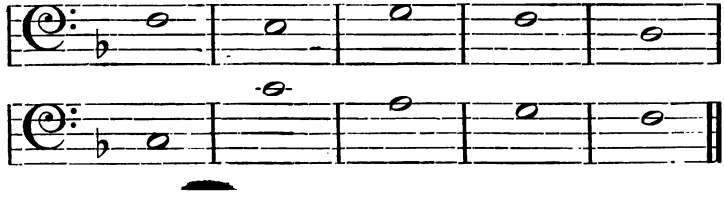
5. Arrange for two violins, viola, 'cello, and D. Bass.

o

6. Continue in Canon for 8 bars:—

7. Add two parts note against note to the following CF:—

8. Add Treble in 1st species and 5th in Alto.



ANNUAL EXAMINATION.

9. Give a brief sketch of Monteverde.

10. Name some of the composers of "The Triumphs of Oriana," and state why they were composed.

11. Give a sketch of the rules of Simple Counterpoint, and mention the value of this kind of counterpoint to a student.

12. Give an exposition in two parts to the following subject; answer it tonally, and write a C.S. in D. Cpt. in 8ve.

[*Nos.* 1, 3, 6, 7, 8, *and* 12 *are essential.*]

SCHOOL OF MUSIC—JUNIOR DIVISION.

Examiner: DR. W. E. THOMAS.

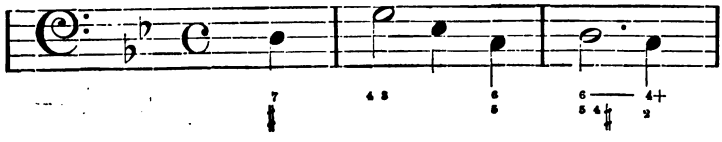
Time allowed: Three hours.

1. Name and invert the following Intervals :—

2. What is a False Relation? Give an example.

3. Give Italian words for :—Little by little, becoming extinct, in a singing style, with decision, in a passionate manner.

4. Harmonize in Four Parts (credit will be given for Alto and Tenor Clefs) :—



ANNUAL EXAMINATION.

5. Harmonize in Four Parts:—

6. Add a II. species below this C.F. :—

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7. Add a C.F. above this Fourth species :—

8. Give Plagal, Authentic, Imperfect, and Interrupted Cadences in the Key of D flat.

9. Give a brief account of early Oratorio.

10. Who were :—Palestrina, Lassus, Allegri, Viadana, Tallis, and Dowland?

[*Questions* 4, 5, 6, 7, *are essential.*]

ANNUAL EXAMINATION.

SCHOOL OF MUSIC.

ACOUSTICS.

Examiner: F. P. WORLEY, M.A., M.Sc.

1. What is the approximate velocity of sound in air? Is it the same for notes of different pitch? How could you verify your answer?

2. The pitch of the whistle of a railway engine seems higher when the train is approaching than when it is moving away from a listener. How do you account for this?

3. A tuning fork is struck and held over a tall glass cylinder which is gradually filled with water. What effects are observed? Explain as fully as you can their cause.

4. On what different things does the pitch of a note emitted by a vibrating string depend? A wire 2 feet long stretched with a weight of 10 pounds vibrates 360 times a second. If its length were increased to 3 feet what would be its frequency? How could its frequency be doubled without altering its length?

5. How do you account for the fact that the same note played on different instruments has such different qualities? How could you illustrate the cause of the difference of the vowel sounds in *mark* and *meek* sung on the same note?

6. What is dissonance and to what is it due? Show by a consideration of the overtones that a major third is a less consonant interval than a fifth.

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7. Explain the meaning of the following terms—interval, major tone, minor tone, minor third, semitone.

8. What is a scale of equal temperament? Show the relation between such a scale and the natural scale.

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SCHOOL OF MUSIC.

THEORY (INTERMEDIATE GRADE).

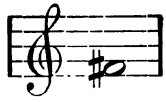
Examiner: DR. W. E. THOMAS.

Time allowed : Three hours.

1. Transpose the following extract into E flat :— [15]

ANNUAL EXAMINATION.

2. Give the following Intervals over :—



Diminished 3rd, diminished 4th, augmented 5th, minor 6th, and diminished 7th. Invert them. [10]

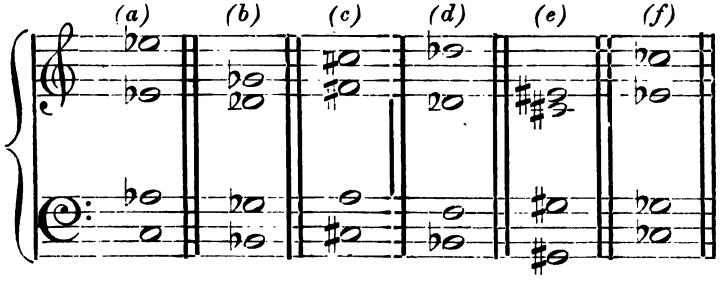
3. Give Time Signatures for two crotchets, three minims, six semiquavers, and twelve minims. [10]

4. Give Melodic Minor Scales of C♮ and C♯, and the Chromatic Scale of C♭. [15]

5. Add Time Signature, Bars, Alto Clef, and state Key of the following :— [10]

6. Give Italian words for :—In a coaxing manner, losing itself, pensive or sad, as lightly as possible, well marked. [10].

7. Explain the following Chords, figure the bass when necessary :— [15]



8 Explain the use of Accidentals, and give all the Signs you know for Staccato and Legato playing. [15]

N.B.—Answers must not be written on this paper.

[*Figures in brackets denote marks for each answer.*]

SCHOOL OF MUSIC.

THEORY (JUNIOR GRADE).

Examiner: DR. W. E. THOMAS.

Time allowed: Two hours.

1. Place the following an 8ve. higher, in the Treble Clef:— [15]

2. Give Single or Dotted Notes that are equal to the following:— 48 demisemiquavers, 7 semiquavers, 6 crotchets, 3 minims, 32 semiquavers. [20]

3. Give the Time Signatures of the following:— [15]

ANNUAL EXAMINATION.

(b)

(c)

4 Give Time Signatures for the following:—Three minims in a bar, five crotchets, seven quavers, nine demisemiquavers, and two semibreves. [10]

5. What Minor Keys have two flats and two sharps respectively? and write out the minor scale with two sharps (harmonic). [10]

6. Give meanings of the following:—*Marcato, tempo primo, lusingando, leggiero, grazioso, smorzando.* [10]

7. Give all Rests that are equivalent to the Notes now in use. [10]

8. How do you know when a piece of music is in the Minor Key? Give an example of 2 bars. [10].

N.B.—Answers must not be written on this paper.

[*Figures in brackets denote marks for each answer.*]

SCHOOL OF MUSIC.

HALF-YEARLY EXAMINATION, NOVEMBER, 1907.

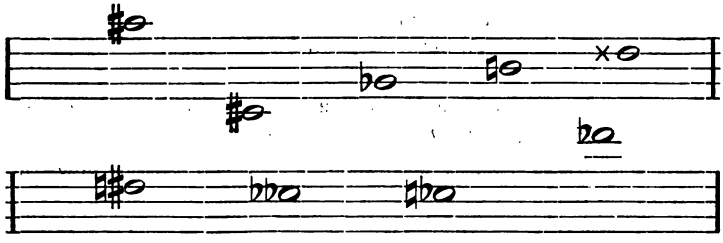
THEORY (PRIMARY GRADE).

Examiner: DR. W. E. THOMAS.

Time allowed: Two hours.

1. What is a Semitone? and how many semitones make an octave? [10]

2. Name the following Notes in the Treble and Bass Clefs, placing the signs at the beginning of the line:— [15]

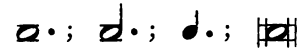


3. Write out the Scales of B♭ and F♯, placing sharps or flats against the notes that require them. [15]

4. What are the following Times:—Duple, Triple, Simple, and C— Give examples of each kind. [15]

ANNUAL EXAMINATION.

5. How many Quavers have the following Notes :— [10]



6. Give meanings of the following :—*Con anima, espressivo, grandioso, meno mosso, poco a poco.* [10]

7. Give Signs for — Minim rest, pause, diminuendo, repeat, double bar, very loud, and moderately soft. [10]

8. State how many you would count in the bar in the following Times :— [15]

$$\frac{12}{8};\quad \frac{3}{16};\quad \frac{2}{4};\quad \frac{9}{4};\quad \frac{4}{4}.$$

N.B.—No answers must be written on this paper.

[*Figures in brackets are marks obtainable for each answer.*]

FRENCH.

Examiner: MAXWELL WALKER, M.A.

PAPER A.

I.

Translate:—

1. Il n'y a rien que de divin dans les maladies qui travaillent les états. Ces dispositions et ces humeurs, cette fièvre chaude de rébellion, cette léthargie de servitude, viennent de plus haut qu'on ne s'imagine. Dieu est le poète, et les hommes ne sont que les acteurs : ces grandes pièces qui se jouent sur la terre ont été composées dans le ciel, et c'est souvent un faquin qui en doit être l'Atrée ou l'Agamemnon. Quand la Providence a quelque dessein, il ne lui importe guère de quels instruments et de quels moyens elle se serve. Entre ses mains, tout est foudre, tout est tempête, tout est déluge, tout est Alexandre, tout est César.

—(JEAN GUEZ DE BALZAC).

2. Les manières de cet homme étaient fort simples. Il parlait peu ; généralement il exprimait ses idées par de petites phrases sententieuses et dites d'une voix douce. Depuis la Révolution, époque à laquelle il attira les regards, le bonhomme bégayait d'une manière fatigante ; aussitôt qu'il avait à discourir longuement ou à soutenir une discussion, ce bredouillement, l'incohérence de ses paroles, le flux de mots où il noyait sa pensée, son manque apparent de logique attribué à un défaut d'éducation étaient affectés et lui servaient à connaître la pensée des autres en les engageant à achever la sienne, par impatience. D'ailleurs quatre

phrases, exactes autant que des formules algébriques, lui servaient habituellement à embrasser, à résoudre toutes les difficultés de la vie et du commerce: "Je ne sais pas; je ne puis pas; nous verrons cela." Il ne disait jamais ni oui ni non, et n'écrivait point. Lui parlait-on? Il écoutait froidement, se tenait le menton dans la main droite, en appuyant son coude droit sur le revers de la main gauche, et se formait en toute affaire des opinions, desquelles il ne revenait point. Il méditait longuement les moindres marchés. Quand, après une savante conversation, son adversaire lui avait livré le secret de ses prétentions, en croyant le tenir, il lui répondait: "Je ne puis rien conclure sans avoir consulté ma femme."

—(HONORÉ DE BALZAC.)

3. Sois sage, ô ma Douleur, et tiens-toi plus tranquille.
Tu réclamais le soir; il descend; le voici:
Une atmosphère obscure enveloppe la ville,
Aux uns portant la paix, aux autres le souci.
Pendant que des mortels la multitude vile,
Sous le fouet du Plaisir, ce bourreau sans merci,
Va cueillir des remords dans la fête servile:
Ma Douleur, donne-moi la main; viens par ici,
Loin d'eux. Vois se pencher les défuntes Années,
Sur les balcons du ciel, en robes surannées;
Surgir du fond des eaux le Regret souriant;
Le Soleil moribond s'endormir sous une arche,
Et, comme un long linceul traînant à l'Orient,
Entends, ma chère, entends la douce Nuit qui marche.

—(BAUDELAIRE.)

II.

1. Translate:—

The trend of events during the last fifty years is particularly difficult to interpret, because the half century has been one of such rapid changes. In this it is comparable with the sixteenth and seventeenth centuries rather than with any other period. The facilities of

transport, which had been introduced during the preceding decades, have been rapidly developed, and cosmopolitan organisation of intercourse is beginning to show itself. The importance to the whole world of a postal and telegraph service is clearly felt, and the primacy of cosmopolitan over territorial interests is recognised, in the denationalisation of certain great waterways, such as the line of lakes in North America, and the Suez Canal; there is a curious contrast with the mediaeval demarcation of marine spheres of influence, or the seventeenth century claims of the English to the Sovereignty of the Seas. Attempts to secure cosmopolitan agreement as to the standard of value show a new desire among the peoples of mankind to meet the common convenience. The days of the supremacy of the nation as the unit for economic regulation seem to be passing away in their turn, as the civic economic institutions and intermunicipal commerce were superseded at the close of the Middle Ages.

(CUNNINGHAM.)

Or, write an essay of about a page and a-half on one of the following subjects:—

(*a*) Les Précieuses.

(*b*) "La Révolution française n'a pas eu de territoire propre."

2. Translate:—

(*a*) It is all one to me whether they are pleased or not, I do not depend upon them for my living.
(*b*) You must have seen them, if you have come that way.
(*c*) Unless your friend is out of his senses, he will never invest his money in such a concern.
(*d*) I have provided her with everything she wants.

ANNUAL EXAMINATION.

FRENCH.

Examiner: MAXWELL WALKER, M.A.

PAPER B.

I. Regnard: *Le Joueur.*

1. Translate:

(*a*) Rien n'est plus à craindre, dans la vie,
Qu' un époux qui du jeu ressent la tyrannie.
J'aimerais mieux qu'il fût gueux, avaricieux,
Coquet, fâcheux, mal fait, brutal, capricieux,
Ivrogne, sans esprit, débauché, sot, colère,
Que d'être un emporté joueur comme est Valère.

(*b*) C'est un homme tondu; quand mon plein est fait; je pousse la fleurette; nos dettes criardes; Vous voir! c'est du plus loin, parbleu, qu'il me souvienne; c'est un futé matois; des partis à fixer un empereur romain.

2. Write notes on: *à fleur de tête, votre tendre maudit, aubaine, aimeriez-vous toujours la charmante Angélique, steinkerque, joûra, jusques.*

3. Scan the following lines:

(*a*) Te voilà bien soufflant. En quels lieux est ton maitre?

(*b*) Je suis le chansonnier et l'âme du festin.

4. Indicate some of the chief differences between Regnard's grammar and that of the present day.

ANNUAL EXAMINATION.

II. Scribe: *Le Verre d' Eau.*

1. Translate and give the context of:

   (*a*) C'était là l'aliment qu'il fallait à mon âme ardente et inactive.

   (*b*) Je prouverai à la duchesse que je m' entends en économie.

   (*c*) La majorité, jusqu'ici douteuse, se dessine pour nous, à la condition que la question sera nettement tranchée.

   (*d*) Je l'ai narguée si souvent qu'elle me le rend parfois.

2. Write short notes on: *Catinat; Hochstett; qui vous ramène; elle a pensé me faire perdre vos bonnes grâces; sarabande; s'occuper toute la journeé de choses qui ne disent rien au coeur, ni à l'imagination.*

3. Discuss the philosophy of Bolingbroke, illustrating by quotations from *Le Verre d' Eau,*
   or, Indicate Scribe's position in French literature.

III. Alexis de Tocqueville: *L'ancien Régime et la Révolution.*

1. Translate:

   (*a*) Qu' importe la dîme à celui qui n'est pas fermier? Il la prélève sur le produit du fermage. Qu' importe la rente foncière à celui qui n'est pas propriétaire du fonds? Qu' importent même les gênes de l'exploitation à celui qui exploite pour un autre?

   (*b*) Souvent obéré et toujours besogneux, il vivait d'ordinaire fort chichement dans son château.

   (*c*) On énumère les boisseaux de blé qu'il faut lui donner en redevance; on suppute ses revenus avec envie, revenus dont personne ne profite, dit-on. Le casuel du curé, son salaire, comme on l'appelle déjà, est excessif; on remarque avec amertume que tout se paye à l'église, et que le pauvre ne saurait même se faire enterrer gratis.

2. Write notes on: *censive, cadastre, corps de ville, métayer, jurande.*

3. State Tocqueville's opinion concerning the Catholic clergy in the Eighteenth Century.

4. (*a*) La Révolution française n'a pas eu de territoire propre.

(*b*) Je veux bien que la centralisation soit une belle conquête, je consens à ce que l'Europe nous l'envie ; mais je soutiens que ce n'est point une conquête de la Révolution.

(*c*) Mais ce qui contribuait surtout à donner aux prêtres les idées, les besoins, les sentiments, souvent les passions du citoyen, c'était la propriété foncière.

(*d*) Le passé est pour les économistes l'objet d'un mépris sans bornes.

Amplify two of the above quotations.

5. Mention briefly the main sources of information to which Tocqueville had recourse.

IV. Period of Literature: 1601-1660.

Answer *five* questions, selecting at least *two* from the first *three*.

1. Mention the authors and approximate dates of the following works: *Les Bergeries*, *La Pucelle*, *Clélie*, *Historiettes*, *Mariamne*, *L'Astrée*, *L'Etourdi*, *Le Véritable Saint-Genest*, *Pyrame et Thisbé*, *Voyages à la Lune et au Soleil*. Write a few lines about two of them.

2. Quote characteristic passages from any *three* authors of the period.

3. Place five of the following quotations:

(*a*) Et rose, elle a vécu ce que vivent les roses.

(*b*) Le visage qui l'embellit
Demeure dessous la toilette
Et n'entre jamais dans son lit.

(*c*) Malherbe, en cet âge brutal,
Pegase est un cheval qui porte
Les grands hommes à l'hospital.

(*d*) La reigle me desplaist, j'escris confusement
Jamais un bon esprit ne fait rien qu'aisement

(*e*) Je suis maître de moi comme de l'univers :
Je le suis, je veux l'être. O siècles ! ô mémoire !
Conservez à jamais ma dernière victoire.
Je triomphe aujourd 'hui du plus juste courroux
De qui le souvenir puisse aller jusqu' à vous

(*f*) Nos vertus ne sont le plus souvent que des vices deguisés.

(*g*) L'homme n'est qu'un roseau, le plus faible de la nature, mais c'est un roseau pensant.

(*h*) Et ! qu' allait-il faire dans cette galère ?

4. (*a*) Estimate the influence of Spain on French literature during this period ; *or*

(*b*) Trace the development of French drama down to the year 1637.

5. (*a*) "Le *Discours de la Méthode* n'a point fait époque dans l'histoire de notre littérature."

(*b*) "Sociale dans son objet, générale dans ses moyens d'expression, cette littérature sera encore morale."
—(Brunetière).

Discuss one of these statements.

6. Estimate the position of *Balzac* or of *Pascal* in French literature.

7. Write short accounts of *three* of the following : *Cyrano de Bergerac, Cardinal de Retz, Scarron, Voiture, Chapelain.*

COMMERCIAL FRENCH.

Examiner: MAXWELL WALKER, M.A.

1. Dictation.

2. Translate:—

(*a*)

Paris, le 12 7bre, 1899.

Messieurs Roux et Cie, Bologne.

Messieurs,

Nous avons retiré de votre honorée du 1er courant la somme de fr. 21000 en deux appoints dont nous vous créditons suivant bordereau ci-joint s'élevant à :

fr. 20984, valeur ce jour, sauf bonne fin. En retour, nous avons payé hier votre chèque, o/ Crédit Italien :

fr. 20000, à votre débit, valeur 11 septembre. Agréez, Messieurs, nos salutations empressées.

Annexe : un bordereau.

p. p. Crédit Lyonnais
Rigal.

(*b*) La Banque de France est aujourd'hui au capital de 182.500.000 francs, divisé en 182.500 actions de 1000 francs chacune ; elle a, en outre, des réserves diverses qui montent à 44 millions. Elle escompte le papier de commerce à trois signatures, c'est-à-dire qu'il faut que le billet à ordre ou la lettre de change qui lui est presentée porte l'engagement on la signature non seulement du débiteur et du créancier, mais d'une tierce personne, généralement un banquier particulier, qui garantit la solvabilité des deux autres. La Banque de France fait des avances sur les rentes de l'Etat français,

les actions et les obligations de chemins de fer français garantis par l'Etat et divers autres titres ; elle fait des prêts sur lingots et monnaies, et se charge enfin de toutes les opérations courantes des banques. C'est le caissier central du haut commerce et de la haute finance en France.

3. Translate :—

(*a*) Dear Sir,—Much to our regret we are compelled to decline your offer to act for us at the Amsterdam sales. At the very moment when you wrote to us, we had been instructing a local broker to act on our behalf, and we cannot, as you will readily understand, cancel our directions now. Had we known that you intended going, we should not have hesitated to ask you to represent us at the sales. Next time, if you let us know a little sooner, we shall be pleased to entrust our interests to your hands.

Yours faithfully,

(*b*) We should be very happy to enter into business relations with you. All our transactions are for net cash. He is a thorough man of business. He happens to be short of money. Try to have these goods ready against the 16th prox. What is your lowest price? All letters should be prepaid. The imports are fully up to the average. To claim demurrage. Free on board. Going! Going! Gone!

4. Make out, in French, the documents which would pass in connection with an order for ten tons of sugar, to be delivered in Wellington within one month from date.

5. Apply, in French, for the following situation :—Wanted—Junior Clerk for a Shipping Office. Salary, £75 per annum.—Apply in own handwriting, to "Waitemata," P.O. Box 255, stating age and previous experience, and enclosing copies of testimonials.

Or,

Write a letter notifying customers of dissolution of partnership.

ANNUAL EXAMINATION.

JURISPRUDENCE.

Examiner: H. D. BAMFORD, B.A., LL.D., Barrister-at-law.

1. Explain briefly the terms: Noxae deditio ; Manus ; Servitus ; Nudum pactum ; Accessio ; Consideration ; Common employment ; Profit à prendre ; Corporation sole.

2. Explain and illustrate the distinction between Antecedent and Remedial Rights. Does it mark a difference in kind?

3. What was the formal contract of Roman Law? What were its essentials?
What is the formal contract of English Law? Comment upon the statement that a deed imports consideration.

4. Explain the terms Intention and Will.

5. State and explain the English theory of judicial precedents. Comment upon Austin's references to "the childish fiction employed by our judges, that judiciary or common law is not made by them, but is a miraculous something, made by nobody, existing from eternity, and merely declared from time to time by the judges."

6. What was the Edictum perpetuum? State the points in which English Equity resembles, and those in which it differs from, Roman Equity.

7. Explain the difference between Positive and Negative Prescription.

8. Define and analyse the term Right.

9. How does Austin explain the difference between a Crime and a Tort? Criticise his view.

10. Explain and illustrate the difference between political sovereignty and legal sovereignty.

ANNUAL EXAMINATION.

CONSTITUTIONAL HISTORY.

Examiner: H. D. BAMFORD, B.A., LL.D., Barrister-at-law.

1. Trace the sources of the Feudal System.
2. Explain the various uses of the term Curia Regis.
3. Summarise the provisions of:—

   The Habeas Corpus Act
   The Declaration of Right
   The Assize of Clarendon
   The Statute Quia Emptores.

4. Sketch the history of the legislation dealing with Placemen.
5. Write a short note upon each of the following:—

   Rotten Boroughs
   Grand Jury
   Suspending and dispensing power
   Appropriation of supplies
   Judges' tenure of office.

6. Sketch the history of the Law of Treason.
7. Give in outline the history of the Militia.

ANNUAL EXAMINATION.

8. Give an account of the constitutional struggle in the reign of George III.

9. Write a short note upon religious emancipation in the 19th century.

10. In what way and within what limits has the House of Lords a power of influencing legislation?

11. Explain the terms:—Tun; Witan; Trinoda necessitas; Tenure by free socage; Justices in eyre.

12. State briefly the position of the Royal Council during the Tudor period.

ANNUAL EXAMINATION.

COMMERCIAL LAW.

Examiner: H. D. BAMFORD, B.A., LL.D., Barrister-at-law.

1. To what extent are the contracts of a married woman capable of being enforced?

2. What is a Bill of Lading? What is the effect of transferring a Bill of Lading?

3. State and illustrate the rule as to appropriation of payments.

4. Explain the rule *caveat emptor*, and state the main exceptions to it contained in the Sale of Goods Act.

5. Give the chief rules for determining the liability of a principal for the acts of his agent.

6. What is the difference between an "open policy" and a "valued policy?" Explain the operation of each.

7. How is bankruptcy brought about? State and explain the doctrine of "relation back." What transactions between the date of an available act of bankruptcy and adjudication are protected?

8. In what ways is (*a*) an unregistered bill of sale of chattels (*b*) an unregistered bailment of chattels liable to be defeated?

9. What is "issuing shares at a discount"? Is it permissible?

ANNUAL EXAMINATION.

10. (*a*) Within what time must notice of the dishonour of a bill of exchange be given?

(*b*) What is the effect of indorsing a bill "without recourse"?

(*c*) What is the effect of indorsing a bill with the words "Pay C.D. only"?

(*d*) What is the effect of indorsing a bill with signature only?

11. Define the terms: General Average; Insurable interest; Ultra vires; Holder in due course; Protest of bill.

12. What are the essentials of a fraudulent preference?

13. A and B are partners. On behalf of the firm A receives money for a particular purpose and makes away with it. By what test would you determine whether B is liable to make the loss good?

14. Define a guarantee. Is writing necessary for it? What is the surety's position in regard to securities held by the creditor?

ANNUAL EXAMINATION.

GENERAL HISTORY.

Examiner: J. P. GROSSMANN, M.A.

N.B.—*Not more than 5 questions out of 9 to be answered in each half of the Paper.*

I.

1. Describe the foreign policy of William III.

2. Explain the circumstances attending the union of England and Scotland and discuss its effects.

3. Describe the character and achievements of Frederick the Great, and the effects of the Seven Years' War upon the growth of the British Empire.

4. Give a short account of the career of Sir Robert Walpole and contrast him with William Pitt (the elder).

5. Explain the theory of kingship held by George III. and the means that he took to carry it into effect

6. Trace briefly the growth of party government and the changing views of Whigs and Tories in the 18th century.

7. Describe the social and industrial condition of England under George II. and George III.

8. Explain the course of events leading up to the loss of the American colonies.

9. Explain briefly the historical importance of:—Pulteney, Bolingbroke, Grenville, Hastings, Bute, North, Wilkes, Junius, Charles James Fox.

ANNUAL EXAMINATION.

II.

1. Estimate the extent and effects of the Danish occupation of England.

2. Explain the nature of the Feudal System, and the causes that led to its decay.

3. Sketch the history of Ireland from the 11th to the 17th century.

4. Describe England's relations with France and Spain in the 14th and 15th centuries.

5. Give a brief account of the character and policy of Elizabeth.

6. Sketch the history of Scotland from the 11th to the 17th century.

7. Explain the growth of England's colonial Empire in the 18th century.

8. Sketch the career of Napoleon.

9. Give a brief account of Political Reform in the 18th and 19th centuries.

ANNUAL EXAMINATION.

ECONOMICS.

Examiner: J. P. GROSSMANN, M.A.

PAPER I.

N.B.—*All candidates will answer first 5 questions.*

1. What are the advantages and disadvantages of Division of Labour?
2. Explain fully the nature and growth of Capital.
3. What is the source from which wages are derived? Explain the theory of wages.
4. What are the objects of trades unions? How far are they attainable?
5. Explain the principles that regulate—
   (*a*) Profits
   (*b*) Interest.

N.B.—*Only 1st year students and candidates for Assoc. Com. will answer questions* 6—9.

6. Explain briefly the advantages of piece wages, profit-sharing, co-operation.
7. What is "sweating" and how does it arise?
8. Are the interests of the wage-earner opposed to those of the capitalist? Discuss this.
9. What are the arguments for the exceptional taxation of land?

ANNUAL EXAMINATION.

N.B.--*Only B.A. and B. Com. candidates will answer questions* 10—13.

10. How far is Economics a Science or an Art?

11. State and discuss the Law of Diminishing Returns.

12. Explain the relation between Market and Normal Values.

13. State Ricardo's Theory of Rent, and criticise its limitations.

ECONOMICS.

Examiner: J. P. GROSSMANN, M.A.

PAPER II.

N.B.—*All candidates will answer first 5 questions.*

1. Why are gold and silver generally used as money?
2. What are the functions of Banks? Explain the system on which the Bank of England issues notes.
3. Explain the advantages derived from convertible bank notes.
4. Discuss the value of Usury Laws.
5. State briefly the benefits and disadvantages of foreign trade.

N.B.—*Only 1st year s udents and candidates for Assoc. Com. will answer questions* 6—9.

6. What were the effects of the demonetisation of silver upon the world's commerce?
7. Would bimetallism be any improvement on the single gold standard?
8. State briefly the case for Protection of Home Industries.
9. What would be the advantage of Preferential Trade?

N.B.—*Only B.A. and B. Com. candidates will answer questions* 10—13

10. Explain the Balance of Trade; how does this enter into the question of fiscal policy?
11. Describe briefly the principle of the Foreign Exchanges.
12. What are the functions of the State in relation to Labour?
13. Discuss the "Dear Loaf" cry, when raised in opposition to a proposed taxation of wheat.

ANNUAL EXAMINATION.

LOGIC.

Examiner: J. P. GROSSMANN, M.A.

N.B.—*All candidates will answer the first 7 questions.*

1. State and discuss the Laws of Thought.
2. Explain the nature and limits of Connotation.
3. Explain, with examples—Conversion, Obversion, Contraposition, Inversion.
4. Explain the construction of the Syllogism and state the general rules for syllogistic inference.
5. State and reduce syllogisms in Bokardo, Cesare, Datisi.
6. Distinguish logical from material Fallacies; and give illustrations of the following fallacies:—Composition, Accident, Ignoratio Elenchi, Petitio Principii, Non Sequitur.
7. Explain the Inductive methods of Difference, Residues, and Concomitant Variations, with short illustrations.

N.B.—*Only 1st year students will answer questions* 8—10.

8. Explain fully the nature of Conditional arguments.
9. Discuss briefly the Quantification of the Predicate.
10. What is the value of Hypothesis in Induction? Explain Nomenclature and Terminology.

ANNUAL EXAMINATION.

N.B.—*Only B.A. candidates will answer questions* 11—14.

11. How far is Logic a Science or an Art? What is its relation to other Sciences?

12. Criticise Jevons's theory of Induction.

13. Explain the functions and value of the Syllogism.

14. Discuss briefly—

(*a*) The Law of Causation.

(*b*) The various theories of Predication.

ANNUAL EXAMINATION.

PSYCHOLOGY AND ETHICS.

Examiner: J. P. GROSSMANN, M.A.

I.—PSYCHOLOGY.

N.B.—*All candidates will answer 5 out of first 6 questions.*

1. Discuss the nature of Consciousness.

2. Explain Attention and the conditions on which it depends.

3. What are the characteristics of Sensation? Is there any *pure* Sensation?

4. Explain the principle of Association and analyse Memory.

5. Discuss the nature of Space Perception.

6. Explain the development of our ideas of Time and Self.

N.B.—*Only B.A. candidates will answer one of questions* 7—9.

7. Discuss the scope and methods of Psychology.

8. Explain fully—Innervation Sense, Conation, Acquirement of Meaning.

9. Discuss—(*a*) Weber's Law,
(*b*) Hering's Theory of Colour.

ANNUAL EXAMINATION.

II.—ETHICS.

N.B.—*All candidates will answer 4 out of first 6 questions.*

1. Classify briefly the various types of Ethical theory.
2. Is pleasure always a motive to action?
3. Criticise Utilitarianism.
4. Show the influence of the theory of Evolution upon Ethical thought.
5. Trace the growth of the Moral Judgment, and explain its nature.
6. What is meant by Intuitionism? Criticise its chief features as an Ethical system.

N.B.—*For B.A. candidates only, one of the following:*

7. State and criticise briefly Kant's Ethical theories.
8. Criticise the Determinist theory, and state the case for "Free Will."

ANNUAL EXAMINATION.

COMMERCIAL GEOGRAPHY.

Examiner: J. P. GROSSMANN, M.A.

I.

N.B.—*Not more than 4 of first 6 questions to be attempted.*

1. Explain the commercial importance of railways and their effect on the growth of trade.
2. What are the chief influences that affect climate, especially through rainfall?
3. Why have the most important civilisations developed in the temperate zones and not in the tropics?
4. How and why does a country suffer through the destruction of its forests?
5. Why is there a "cheap labour problem" in
   (*a*) Queensland
   (*b*) The Transvaal?
6. What influences assist or retard the growth of industries in newly settled countries?

II.

N.B.—*Not more than 8 out of last 12 questions to be attempted.*

1. Locate the chief agricultural products of Europe.
2. Describe the natural resources of Germany, and account for her commercial success.
3. What causes have contributed to England's commercial and industrial predominance?

4. Account for the commercial importance of Switzerland, Belgium, Denmark, Norway.

5. What do you know of Irrigation in Spain, Egypt, India?

6. Describe the railways built or projected in Asia.

7. Discuss briefly the commercial possibilities of (*a*) India, (*b*) China, (*c*) Japan.

8. Describe products and industries of South Africa.

9. Contrast the natural resources of Canada and the United States.

10. What do you know of New Zealand's water power as a source of electrical energy?

11. Contrast

    (*a*) The products of the North and South Islands.

    (*b*) The natural resources of New Zealand and Australia.

12. What difference would Preferential Trade make to the Australasian colonies?

ANNUAL EXAMINATION.

CURRENCY AND BANKING.

Examiner: J. P. GROSSMANN, M.A.

1. Explain the Bank Charter Act, and analyse a typical Bank "return."

2. Explain the nature and position of the joint stock banks, and analyse a typical joint-stock Balance-sheet.

3. Explain the functions and uses of stock jobbers and stock brokers.

4. Explain briefly—Mint par, export gold point, unfavourable exchange, long exchange, arbitrage, and the connection between the English Bank rate and the foreign exchanges

5. "England has only one gold reserve"—discuss this.

6. How ought banks in general and the Bank of England in particular to deal with panics?

7. Describe
   (*a*) A typical case of option dealing.
   (*b*) A typical settlement on the Stock Exchange.

8. Explain fully—Index Numbers, Tabular Standard, Clearing House.

9. Discuss the question of Inconvertible Paper money.

10. What is a Double Standard monetary system? Explain the advantages claimed for Bimetallism.

11. Explain the low price of silver since 1873 and its effects.

ANNUAL EXAMINATION.

ACCOUNTANCY.

Examiner: MR. HORACE H. HUNT, F.N.Z.A. & A.A.

PAPER A.

1. Prepare a list of books necessary for properly recording the affairs of a Merchant's business and show the rulings of the Day Book and Cash Book, making a few explanatory entries.

2. Enumerate and explain the various classes of Account incidental to such a business.

3. What methods would you adopt for simplifying and reducing the work of the Counting House?

4. Give an example of the system adopted for proving the transactions of a business in which separate Ledgers for various Departments are used.

5. What is a consignment, and how should it be dealt with in account? In preparing a Balance Sheet how would you treat that portion of the Consignment which had been realised and also any dependency?

6. Give a definition of the following terms:—

   Capital Expenditure, Specific Duty, Del Credere Commission, Prime Entry, F.P.A., Charter Party, Documentary Draft, Demurrage, Deferred Shares, Negotiable instrument, Fixed Assets.

7. Explain the use of the Double Account system.

ANNUAL EXAMINATION.

8. It being proposed to form a Limited Liability Company to take over the business of a private trading concern, what investigations would you make preparatory to drawing up a report upon such business?

9. Assuming your report to be satisfactory and the following basis for purchase agreed upon, how would you open the books of the Company? Value of Assets:—Freehold Land and Premises £4000, Manufactured Stock £1500, Unmanufactured Stock £500, Horses and Vehicles £150, Goodwill £300. Payment to Vendor by Deferred Shares £1000 (100 shares fully paid at £10) and £5450 in cash.

10. Explain the meaning of Reserve Fund and Sinking Fund.

11. State briefly the necessary measures to be taken to form a Company and the books required for keeping a proper record of Company transactions.

ACCOUNTANCY.

Examiner: Mr. Horace H. Hunt, F.N.Z.A. & A.A.

PAPER B.

1. On January 3rd, 1907, D.B. received from A.H. a promissory note for £157 18s 4d payable on June 8th. The P.N. was duly entered in Bills Receivable Account, and sent to the Bank for discount, but was returned, the Bank not caring to discount five months' paper. Before the due date A.H. paid D.B. £150 cash, who credited it to the personal account of A.H. Show the various entries required to place the accounts in order.

2. What purpose does a Suspense Account serve? Give items which correctly belong to this Account, and show their operation.

3. Green & Bright of Dunedin buy goods of Brown & Hodgson of Auckland, the following being the dates and the amounts of the invoices. January 15th, £130 12s 2d. February 13th, £101 1s 6d. March 4th, £87. March 12th, £37 2s 3d. It is arranged that Green & Bright shall pay by P.N. at 4 months, at the average due date for the whole amount, 3½ per cent. being added for interest and exchange. Stamp duty extra. Make out statement and draw a P.N. for the amount to be paid. Show the working.

4. Make out a statement of contributing values for general average and a statement of settlement of losses from the following particulars. The ship "Flora" was stranded and a portion of the cargo lost. The value of the ship was £4,000; the freight at risk £200. The value of the cargo

was £2,560 as follows:—A. £800, B. £600, C. £460, D. £700. The losses on A's goods £200, on B's goods £300. The ship's losses were:—

Paid for towing steamer	... ...	£150
Ropes, etc.	... ...	62
Discharging Cargo into Lighters	...	100
Chartering Steamer and Loading	...	100
Harbour Dues and Warehouse Rent	...	50
Wages and Provisions for Crew, while vessel ashore	... ...	150
Services Superintendents Salvage	...	200
Adjustment charges	... ...	40
		852
to which add		
A's goods lost ...	... ...	200
B's goods damaged	... ...	300
Total Loss	... ...	... £1,352

5. Prepare a Trading Account and draw up a Balance Sheet from the following particulars. Alexander Stewart bought of Alfred Jones his business of a "cash" storekeeper, which was carried on in three establishments, Newton, Epsom, and Devonport. The stock was valued at £1,795—Newton £695, Epsom £500, and Devonport £600. Plant and Fittings were valued at £250. Horses and Carts £135. A. Stewart paid into the Bank for trade purposes £200. Stewart's sales for the first year were:—

Newton	£2,534	4	9
Epsom	1,561	18	2
Devonport	1,372	9	1
The purchases paid for			
Newton	1,864	2	0
Epsom	1,219	3	8
Devonport	1,004	13	2
Drawings	295	0	0
Wages	595	0	0
General Expenses	310	0	0

Debts due by A. Stewart

Newton	£676	9	0
Epsom	419	10	6
Devonport	395	0	3

Stock was taken at each Branch with the following results:

Newton	730	0	0
Epsom	396	10	0
Devonport	583	15	0

Make allowance of 10 per cent. for depreciation on fixtures and fittings; of 15 per cent. on carts, valued at £60. The value of the horses to remain as when purchased. Expenses to be divided equally between the three branches. The Trading Account of each Branch must be shown separately.

8. The Brunswick Milling Co., Ltd., was established with a capital of £200,000 in 40,000 shares of £5 each, of which £3 has been paid up. After two years of unsuccessful trading a loss has been incurred of £40,000. The Directors recommend that the Capital be reduced to £150,000 and to make a call for unpaid Capital. This call was responded to by the payment for all but 2,000 shares, these being forfeited by non-payment. Show the necessary entries for Reduction of Capital, Share Forfeiture, Capital Account, and Profit and Loss Account.

ANNUAL EXAMINATION.

PRINCIPLES AND HISTORY OF EDUCATION.

Examiner: HERBERT A. E. MILNES, B.Sc., LOND.

MORNING PAPER—*Answer six questions.*

1. Say what you know of the following:—
   (*a*) Weber's law.
   (*b*) Ergograph.
   (*c*) Hincke's Bird Plan.
   (*d*) Snellen's Tests.
   (*e*) The Plenum System.
2. What do you understand by "the interdependence of the physical, mental, and moral"?
3. What steps would you take to train the memory? Discuss mnemonics.
4. Classify temperaments.
   Show how such knowledge will be helpful in school management.
5. Discuss the New Zealand Cadet System with regard to physical education, health, and character.
6. Pestalozzi relied largely upon "the sheer dead lift of the will." What do you understand by this?
7. Dr. Stanley Hall in his "Adolescence" speaks of "the low ranged mentation that hovers near the coast line of matter and cannot launch out with zest into the open sea of thought." What does he mean?

ANNUAL EXAMINATION.

8. Distinguish between order and discipline.

What is the Discipline of Natural Consequences.

What do you consider should be the punishment for the following:—

(*a*) "All eyes on books": Charles looks elsewhere.

(*b*) "Everybody must be there at ten o'clock." Mary comes late.

(*c*) "There must be no blots on the copy books": Tom makes a blot.

9. "*Consciousness* is the word which expresses in the most general way the various manifestations of *psychological life*. It consists of a continuous current of *sensations*, *ideas*, *volitions*, *feelings*." This is a quotation from Ribot. Define the words in Italics.

ANNUAL EXAMINATION.

PRINCIPLES AND HISTORY OF EDUCATION.

Examiner: HERBERT A. E. MILNES, B.Sc., LOND.

AFTERNOON PAPER—*Answer six questions.*

1. Say what you can of the following:—
   (*a*) Palestra.
   (*b*) Maiëutics.
   (*c*) "Greece in being conquered, conquered in turn her rude victor."
   (*d*) The Trivium.
   (*e*) The Mutual System.

2. In the History of Education what attention has been paid through the centuries to the study of music?

3. Whom do you regard as the dominant figure in education from 1000 A.D. to 1600 A.D.?
   Give an account of his teachings.

4. Compare the systems of the Jesuits and Jansenists.

5. What is understood by the term "Return to Nature." What authorities took this as a guiding principle?

6. What is Utilitarianism? Name any educationalists who may be classed as Utilitarians.

7. What do you know of Herbart's teaching?

ANNUAL EXAMINATION.

8. "Without doubt we must guard against the dangers of an education which is too compliant, too easy, which makes an abuse of what is diverting and which excludes effort." Discuss Compayré's words in the light of Froebel's teaching.

9. From the list of Educationalists studied select the one who has in your opinion done most to further the cause of education. Give your reasons for making the choice.

GREY SCHOLARSHIP EXAMINATION.

PURE MATHEMATICS.

Examiner: PROFESSOR H. W. SEGAR, M.A.

1. Solve the equations:—

(i.) $x^{\frac{1}{2}} + (4a+x)^{\frac{1}{2}} = 2(b+x)^{\frac{1}{2}}$,

(ii.) $\begin{cases} x - ay + a^2z = a^3, \\ x - by + b^2z = b^3, \\ x - cy + c^2z = c^3. \end{cases}$

2. Find the square root of

$$(a^2+b^2+c^2)(x^2+y^2+z^2) - (cy-bz)^2 - (az-cx)^2 - (bx-ay)^2.$$

Simplify

$$\frac{(4+\sqrt{15})^{\frac{3}{2}} + (4-\sqrt{15})^{\frac{3}{2}}}{(6+\sqrt{35})^{\frac{3}{2}} - (6-\sqrt{35})^{\frac{3}{2}}}.$$

3. If a, b, c are in A.P. and b, c, d in H.P., then a, $\frac{c^2}{d}$, c are in H.P., and $\frac{1}{b}$, $\frac{b}{ad}$, $\frac{1}{d}$ in A.P.

4. A crew of 8 rowers and 1 coxswain has to be formed out of 12 men, 9 of whom can row but not steer, and 3 can steer but not row; in how many ways can it be done? If one of the 3 could both row and steer, in how many ways could it be done?

5. Sum to n terms the series whose nth terms are

(i.) $2n - 1 + 2^n$, (ii.) $(n-1)\,x^n$, (iii) $n(n+2)$.

6. Expand $(2-3x)^{-\frac{2}{3}}$ to 4 terms.

If $(1+x)^n = c_0 + c_1 x + c_2 x^2 + \text{- - - - - - -} + c_n x^n$, prove that

$$c_0 c_2 + c_1 c_3 + \text{- - - - -} + c_{n-2} c_n = \frac{\lfloor 2n}{\lfloor n+2 \; \lfloor n-2}.$$

7. If perpendiculars BY, CZ be drawn to any straight line passing through the vertex A of a trangle ABC, show that the middle point of BC is equidistant from Y and Z.

8. If from the vertex A of a triangle ABC straight lines AH, AK be drawn parallel to the tangents to the circumcircle at B, C, cutting BC in H, K, show that the triangles HBA, KAC are equiangular with the triangle ABC.

9. In a regular tetrahedron show that the height bears to an edge the ratio $\sqrt{\frac{2}{3}}$.

Find the angle between two faces and that between an edge and a face.

10. Prove that

(i.) $\cos(\alpha+\beta)\sin\beta - \cos(\alpha+\gamma)\sin\gamma$
$= \sin(\alpha+\beta)\cos\beta - \sin(\alpha+\gamma)\cos\gamma$,

(ii.) $\sin^2 A + \sin^2 B + \sin^2 C - 2\cos A \cos B \cos C = 2$,
if $A+B+C=\pi$.

11. Eliminate θ between the equations

$$m = \operatorname{cosec}\theta - \sin\theta,\quad n = \sec\theta - \cos\theta.$$

Find x from the equation

$$3\tan^{-1}(x+1) = 2\tan^{-1}(x-1) + \tan^{-1}\frac{x}{2-x}.$$

12. Show that in any triangle

$$r_a + r_b + r_c - r = 4R.$$

and that the area of a triangle is equal to

$$\sin\frac{A}{2}\sin\frac{B}{2}\sin\frac{C}{2}\left(\frac{a^2}{\sin A} + \frac{b^2}{\sin B} + \frac{c^2}{\sin C}\right).$$

GREY SCHOLARSHIP EXAMINATION.

MECHANICS AND HYDROSTATICS.

Examiner: PROFESSOR H. W. SEGAR, M.A.

1. At a given instant a particle is sliding down a rough plane, inclined at an angle $sin^{-1}\frac{5}{13}$ to the horizon, with a velocity of 16ft. per second; if the coefficient of friction be $\frac{2}{3}$, how much further will it move before coming to rest?

2. A ball is fired at an elevation $tan^{-1}\frac{1}{10}$ towards a person on the same horizontal plane as the gun; if the ball and the sound of the discharge reach him at the same instant, find the range, the velocity of sound being 1,120ft. per second.

3. A pulley is fixed at the top of a smooth inclined plane of inclination α to the horizon. A string passing over the pulley in a principal plane is attached to a mass M on the inclined plane, and the other end supports a mass m hanging freely. Show that M will just reach the pulley if m is detached after it has fallen a distance equal to

$$\frac{(M+m)\ sin\ \alpha}{m\ (1+sin\ \alpha)}$$

of the original distance of M from the top.

4. A clock which at the surface of the earth at a certain place gains 10″ a day, loses 10″ a day when taken down a mine; compare the force of gravity at the surface and at the bottom of the mine.

5. A particle P is placed in a smooth horizontal tube AB, and is acted on by two forces tending to two fixed points C, D, and proportional to the distances CP, PD; find the force necessary to keep P at rest in a given position.

6. A regular hexagon composed of six equal heavy rods, moveable about their angular points, is suspended from one angle, which is connected by threads with each of the opposite angles. Show that the tensions of the threads are as $\sqrt{3} : 2$.

7. Two sides AB, CD of a quadrilateral are parallel, and their middle points O, T are joined by a line OT of length c; if AB = a, CD = b, and G be the centre of gravity of the figure, show that

$$OG = \frac{c}{3} \cdot \frac{a+2b}{a+b}.$$

8. A rope passes round a pulley and its ends are coiled opposite ways round two drums of different radii on the same horizontal axis. A person pulls vertically upon one part of the rope with a force P. What weight attached to the pulley can he raise, supposing the parts of the rope parallel?

9. If the sector of a circle balance about the chord of the arc, prove that, 2α being the angle of the sector,

$$2 \tan \alpha = 3\alpha.$$

10. Two cylindrical vessels of the same diameter and with vertical sides contain quantities of water and mercury respectively which produces the same pressure on the base of each. If s denotes the specific gravity of mercury, compare the total pressures on the sides.

11. A triangular lamina ABC, right-angled at C, floats in a liquid of $\frac{8}{3}$ of its own density, hinged freely at C to a point fixed below the surface, and with AB entirely out of the liquid. If CA makes an angle of 30° with the horizon, and CB is bisected by the surface of the liquid, prove that the lengths of CA and CB are to one another as $2 : \sqrt{3}$.

12. A piston without weight fits into a vertical cylinder, closed at its base and filled with air, and is initially at the top of the cylinder; water being poured slowly on the top of the piston, find how much can be poured in before it will run over. Explain the case in which the height of the cylinder is less than the height of the water barometer.

GREY SCHOLARSHIP EXAMINATION

13. The readings of a common hydrometer when immersed in three different fluids are l_1, l_2, l_3, and the weights which must be placed in the upper cup of a Nicholson's hydrometer in order to sink it to the mark when placed in the different fluids are w_1, w_2, w_3 respectively. Show that

$$l_2\, l_3\, (w_2 - w_3) + l_3\, l_1\, (w_3 - w_1) + l_1\, l_2\, (w_1 - w_2) = 0.$$

GREY SCHOLARSHIP EXAMINATION.

CHEMISTRY.

Examiner: F. P. WORLEY, M.A., M.Sc.

1. What is the action of water on the following substances—(1) calcium phosphide, (2) antimony chloride, (3) phosphoric oxide, (4) nitrogen peroxide, (5) aluminium carbide, (6) concentrated sulphuric acid

2. Give instances of chemical reactions that depend on the presence of a "catalytic" agent, and carefully trace, in any one case, the part played by the "catalytic" agent.

3. Describe a method for the qualitative separation of zinc, nickel and cobalt, and fully explain the principle of the method and the reactions involved.

4. Fully describe the cryoscopic method of determining molecular weights.

   From the following experimental data, calculate the molecular weight of the *unknown substance* used:—

Weight of solvent employed	=	20·115 gms.
Freezing-point of solvent	=	− 1·115° C.
Molecular lowering of solvent	=	1850.
Weight of *unknown substance* taken	=	1·02 gms.
Freezing-point of solution	=	− 1·395° C.

5. Give a full account of the reasons for believing that mercury in the state of vapour has a monatomic molecule. What other substances are believed to be monatomic?

GREY SCHOLARSHIP EXAMINATION.

6. Give an account of the preparation and properties of potassium dichromate. Starting from potassium dichromate how would you prepare potassium chromate, chromium sesquioxide, chromium trioxide, chromyl chloride and chrome alum?

7. What views have been held regarding the nature of acids? Distinguish between a strong acid and a weak acid and give some account of experiments that have been made to compare the strengths of acids.

GREY SCHOLARSHIP EXAMINATION

HEAT, SOUND, AND LIGHT.

Examiner: F. P. WORLEY, M.A., M.Sc.

1. Describe Joly's Steam Calorimeter, and explain how it has been used to determine the specific heat of a gas at constant volume.

   Show that the molecular heat of a gas at constant volume is approximately 2 calories less than that at constant pressure.

2. Give an account of Prevost's theory of exchanges and describe experiments illustrating it. Prove by means of the theory that the absorptive and emissive powers of a surface for any radiation are the same at any given temperature.

3. What is a thermodynamic engine? Define efficiency and reversibility of a thermodynamic engine, and show that all reversible engines have the highest possible theoretical efficiency. By means of a reversible thermodynamic engine define temperature on the absolute thermodynamic scale. How far has this scale been found to agree with that of a gas thermometer?

4. As a whistling railway engine passes a station the pitch of the whistle seems to alter by a major tone: what is the speed of the engine?

   What use has been made of the principle here involved to measure velocity in the line of sight by means of the spectroscope?

GREY SCHOLARSHIP EXAMINATION.

5. What is a diffraction grating and how is it made? Explain its action and find a formula connecting the wave length of the diffracted light with its deviation and the distance between the lines of the grating.

6. Describe Michelson's Interferometer, and explain how it could be used to determine the refractive index of a gas.

GREY SCHOLARSHIP EXAMINATION.

ELECTRICITY AND MAGNETISM.

Examiner: F. P. WORLEY, M.A., M.Sc.

1. How would you find the horizontal intensity of the magnetic field at any point in a laboratory and find its variations in different parts? How would you map your results?

2. Explain what you mean by Electrical Potential? Find an expression for the difference of potential between two points due to a system of electrified bodies, and thence show that the capacity of a sphere is numerically equal to its radius.

3. Calculate the capacity of the earth in farads.

   "v," the ratio of the electromagnetic to the electrostatic C.G.S. units $= 3 \times 10^{10}$.

4. Give a detailed account of the method you would use to determine the insulation resistance of a given specimen of cable.

5. A system of low voltage lamps is to be run by electric power obtained from a distant waterfall. Show that it is more economical to convey the electricity at a high voltage than at a low one. Explain how the power may be made available for the low voltage lamps.

GREY SCHOLARSHIP EXAMINATION.

6. A Daniell's cell with an E.M.F. of 1·07 volts, and an internal resistance of 2 ohms has its terminals connected by two wires in parallel of 3 and 4 ohms respectively. If the electro-chemical equivalent of copper is 0·000328 grams per coulomb, calculate the quantity of copper deposited in the cell; also calculate the heat developed in each of the wires during one hour of working.

7. Give an account of the effects produced by a discharge of electricity through a gas as the pressure is gradually reduced to a minimum, and state the views held regarding their cause.

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